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THE USE AND ABUSE OF WATER.

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AS the superscription indicates, this is not intended to be a scientific dissertation on the various uses to which water may be put, either in health or disease, the writer's purpose being simply to gather a few random notes which he hopes may not prove uninteresting to the average reader.

At the outset one is reminded that at no period has investigation as to the physiological effects of water, *per se*, received the serious consideration and attention which the importance of the subject should command, although much has been previously written concerning the therapeutic uses of water (hydrotherapy), the advantages of systematic bathing, in health and disease, the various kinds of baths required, etc.; nor on this occasion will any attempt be made to clearly elucidate the physiological intricacies involved.

Water employed in the form of baths must necessarily affect, directly or indirectly, the human organism chiefly in two different ways, viz.: (1) through its mass, and (2) through the temperature which it carries. When used merely for purposes of personal cleanliness, it is, of course, for the direct effect which it has upon the tissues with which it is brought into immediate contact; but when employed for its effect upon remote parts,—those with which immediate contact is impossible,—then the influence exerted is indirect, i. e., through the nervous mechanism. As is well known, different tissues of the human body react dissimilarly toward water applied at various temperatures; e. g., connective tissue expands under the influence of hot water, and contracts under that of cold, whereas the converse is probably true with the elastic tissues.

It is important in considering the question of hot and cold baths, to remember that the average temperature maintained by the normal human body (in health) in all climates, with little or no variation, is 98.6° F. The assumption is reasonable therefore that all the chemical processes and physiological functions essential to human life and physical well being are most advantageously performed at about this degree of temperature; and this presupposes the existence of an extremely complicated and perhaps little understood heat-regulating apparatus, one which shall be requisite to properly maintain this even temperature. It would seem most natural under these circumstances that the bath which has for its object personal bodily cleanliness, for purely its local effect upon the body and its functions, should properly be of a temperature which shall not interfere with heat-production or heat-radiation; in other words during health the bath intended merely for external cleansing purposes should be of such temperature as shall feel neither hot nor cold to the individual. Of course this assertion has no reference to hot or cold baths during the course of acute or

chronic disease, and that hydrotherapy has distinct and positive indications, and that it may be employed with signal benefit, in numerous diseases to which human flesh is heir, there is abundant evidence to prove. And when one recalls the effect which may be produced upon remote tissues and internal organs by external application of water at high or low temperature, as may be indicated; when it is remembered that effect may vary with the degree of temperature at which water is applied, the power of this apparently simple agency for good or evil cannot fail of appreciation, and the importance of a thorough and comprehensive knowledge and understanding of its physiological properties, its indications and limitations becomes paramount in order that its logical and rational application may be insured. For these reasons the greatest care should be exercised in recommending either very hot or very cold baths, to the end that the anticipated benefit and not harm may ensue.

Beyer states* that it has been experimentally demonstrated during bathing an electrical current passes from the warmer to the colder medium; that is to say in a bath which feels cold there is a descending electrical current, and in one which feels warm there is an ascending current; that the strength of these currents varies in direct proportion to the temperature difference existing between the body and the surrounding water. And the currents thus called into existence either weaken or strengthen the normal nerve-currents constantly present in the living, active human organism; thus the normal efferent motor current is directly strengthened by a cold bath, hence the natural inclination when taking a cold bath is to indulge in vigorous muscular movements; and in such a bath for the reason already intimated the normal nerve-current in efferent nerves must be weakened. Another important observation in this connection is that a certain amount of swelling by absorption occurs whenever the body is kept in contact with water for a sufficient length of time. A calming effect is said to be produced whenever this swelling by contact is greater than the electrical current is strong; on the other hand an exciting effect is produced whenever the electrical current preponderates. The prompt disappearance of an itching sensation about the surface of the body (either in health or disease), as well as that feeling of general fatigue, which usually follows subjection of the body to the influence of a hot bath, may be explained by the swelling which takes place in the peripheral termination of the nerves of general sensation.

Beyer† further declares that the existence of special endings of temperature nerves in the human skin having been demonstrated conclusively, not only by physiological experiments but by clinical and pathological observation, it is probable that through these the greater portion of the reflex effects, due to the water, are produced; that in any event every known fact so far ascertained seems to point to the nervous system

*H. G. Beyer, *The Medical Age*, Detroit, Mich.

†Loc. cit.

as being the channel through which water of varying degrees of temperature affects the normal functions of the body in bathing. The refreshing and restorative qualities of a moderately cold douche after having taken a certain amount of vigorous exercise are well known, as is also the effect of a small quantity of cold water thrown into the face of one seized with syncope. The fact must not be allowed to pass unobserved that the normal excitability of nerve-endings in the skin may be increased or diminished by contact with water of different degrees of temperature; thus experiments made with the æsthesiometer (Sieveking) have proved that hot water will increase, and that cold water will diminish, excitability to a great degree, even to the production of complete anæsthesia. In addition to the local effect of hot and cold water upon the nerve-endings and their functions, as already noted, there must also be taken into account the reflex effect produced by the same agents upon the motor and inhibitory nerves. As is well known, contraction of both voluntary and involuntary muscles may be induced reflexly by application of cold water, and moderate chilling will invariably induce contraction of the capillaries as well as the smaller arteries and veins; whereas moderately hot water will cause dilatation of the blood vessels, thus clearly indicating a reflex influence upon the vaso-motor portion of the sympathetic nervous mechanism. And the extensive vascular dilatation which follows temporary contraction induced by application of cold water shows the effect of stimulation of the inhibitory and vaso-dilator nerves which has been thus produced. Cases are not infrequently observed where temporary blanching of the skin has been succeeded by intense hyperæmia, stasis and congestion. As further evidence that the phenomena induced are reflex in origin, it may be said that contraction of the blood-vessels is not confined solely to the region to which cold is applied, but may be observed at remote points. Some interesting experimental work has been undertaken in this connection during recent years, but to review it more extensively would unduly prolong these superficial and desultory remarks.

Hydrotherapy is best defined as the use of water for relief or cure of disease, which includes the application of water in any form, solid, fluid, or vapor (from ice to steam), internally or externally. There has been much discussion as to the relative importance of hot and cold water in therapeutics, but the *consensus* of opinion is that the matter remains unsettled, as both have direct and indirect indications, contra-indications and limitations.

If it could be sufficiently emphasized to secure realization of the fact that water is a better antipyretic than aconite or phenacetin, a better analgesic than opium, a better sedative than the bromides, a better heart tonic than digitalis, a better cathartic than calomel, a better diuretic than potassium citrate or buchu, it would certainly be more extensively employed than is true at present. For all these purposes it may be said that while not necessarily the more active, water is the better remedy; moreover, it is practically harmless provided the same degree of intelligence and common sense be employed in its administration as is supposed to be exercised in the rational application of other therapeutic agencies, therefore the *rationale* of its employment, either internally or externally, should

be thoroughly understood and appreciated to secure successful results.

It is now a recognized fact that the internal administration of pure water is almost invaluable in the management of all febrile conditions, and the patient should be encouraged to partake of it freely since it assists in filling depleted vessels, dilutes toxins circulating in the blood, stimulates activity of the kidneys, skin and intestines, thereby aiding the elimination of by-products of morbid metabolism through these channels and conducing to the feeling of comfort on the part of the patient. The importance of water, *per se*, for maintenance of the human organism is a well-recognized physiological fact; it not only furishes a solvent for the elements required in the life and functions of the tissues but serves to maintain that degree of tension necessary for proper circulation of the lymph stream. According to Glax the pulse is affected according to the temperature of the water taken, cold water reducing the frequency from six to thirty beats; he has seen reduction from eighty to forty-nine beats from the ingestion of 45 ounces of water at temperature of 43° F. in doses of nine ounces at intervals of thirty minutes. Warm or hot water is said to increase the pulse from ten to sixteen beats, and the character of the pulse is more or less affected by the quantity of water ingested. Glax claims the changes in the pulse ensue too quickly to be the result of an increased amount of water in the blood, that they are probably the result of reflex action upon the vaso-motor centers. The assertion would seem warranted, therefore, that the internal use of cold and hot water has a more or less definite influence upon the vaso-motor mechanism not dissimilar to that which is produced by external application of the same agents.

Stovall* claims that the diuretic effect of water taken internally depends not upon the quantity ingested, as has been erroneously supposed, but rather upon an increase of blood pressure produced by irritant action of the cold and consequent increased rapidity of the blood streams in the kidneys; for this reason the diuretic effect is absent when water is taken lukewarm, or when the heart is unsound; but hot water having the same irritant action produces the diuretic effect. He also says the constitutional effects indirectly induced by the drinking of either cold or hot water are, of course, those associated with improvement of digestion, that the constitutional effects directly induced are slight increase of vascular pressure, increased flow of urine, at times a laxative effect upon the bowels, increased secretion of the glands of the alimentary canal, and as a result of discharge of their secretions flushing of excretory organs, particularly of the kidneys, which carry off so much of the effete matters resulting from metabolism. His suggestions as to the therapeutic uses of water internally (either by the mouth or rectum) may be epitomized as follows: (1) In functional disorders of the stomach and intestines, especially in chronic gastric or gastro-intestinal catarrh; in some cases of constipation, in flatulent conditions, or catarrhal irritability, causing irregularity of the cardiac rhythm, or palpitation; (2) In lithemia, accompanied by acid, high colored urine, the flushing of both the alimentary and urinary tracts, with largely increased diuresis, irrespective of its in-

*A. M. Stovall, MEDICAL TIMES, New York.

creasing the amount of circulating fluid in the blood-vessels, does actually (as it is popularly expressed) purify the blood.

The hot compress as well as the hot douche have long enjoyed an established position in rational therapeutics, but there has existed a popular prejudice against local applications of cold, and the inestimable value of the latter, especially in febrile conditions, including typhoid fever, pneumonia, smallpox, scarlatina, and other diseases in which the temperature range is high, suggests the importance of attempting to overcome this prejudice. The cold bath, cold pack, cold sponging, perhaps owe their efficiency not so much to abstraction of heat and reduction of temperature (although their value in this respect must be duly recognized), as to the tonic effect upon the entire system induced by temporary shock to the sympathetic nerves and the reaction which follows vigorous friction, stimulating stronger action of the heart, raising blood pressure, increasing the activity of the skin and the kidneys, thereby promoting the elimination of toxic materials. And it may be said that cold water is scarcely less valuable in some of the chronic diseases where its tonic effects prove of decided benefit without secondary relaxation; here, too, hot water, or the alternation of heat and cold, may find many indications, improving vaso-motor tonus and stimulating nutrition. Again, in those who indulge too freely in rich and proteid foodstuffs, and those who take insufficient exercise, there is a tendency of the blood to become charged with the products of defective metabolism, a condition which if allowed to persist conduces to permanent arterial changes and likewise predisposes to numerous serious diseases; here water is an invaluable remedy, and with proper adjustment of habits and diet may be the only assistance required by nature to restore physical equilibrium.

In writing on the rapid treatment of typhoid fever, another author* makes the following assertions: It must be admitted that the cold tub bath is repugnant, especially in private practice, and cannot be carried out in all cases. It is found that a sprinkle bath gives tone to the nervous system, is equally effective and cannot be objected to, as it is simple, easy to control and pleasant. It reduces the fever, tranquilizes the patient, and gives the least amount of trouble to both the patient and attendant. The internal administration of water is based both upon physiologic data and experiment. It keeps the blood fluid; it prevents dryness of the skin and mucous membrane; it cleanses the system of waste; is agreeable to the patient, and is absolutely free from a single contraindication.

The use of water for the purpose of gastric lavage as recommended and practised by many eminent therapeutists both in this country and abroad is too well known to require any extended mention. Likewise the indications for gastric lavage in gastric and gastrointestinal irregularities are equally familiar to the average reader of therapeutic literature. Many cases of so-called chronic dyspepsia, nervous dyspepsia, constipation, ileus, dilatation of the stomach (due to atony), gastralgia, gall stones (?), and numerous other conditions, acute and chronic, have been relieved or cured by gastric lavage. The first case of ileus successfully treated by this method was reported

by Kussmaul. Gastric lavage also has many indication as a diagnostic agency.

It is claimed that by enteroclysis, the injection of moderate quantity of water into the large intestine by means of a long rectal tube, many cases of obstinate diarrhoea and dysentery may be permanently cured, as by this method the toxic materials, the result of decomposition, as well as pathological elements present, may be successfully removed. Flushing the colon with hot water, some of which should be retained by assumption of the recumbent posture, constitutes a safe and powerful means of causing increased renal activity. Cold enemata or irrigations are regarded as dangerous in renal diseases, but hot irrigations may be decidedly useful in uremia and renal insufficiency.

Water when judiciously taken in half pint doses as a laxative in the morning, as a sedative at night, as a diuretic when the skin is cool, as a diaphoretic when the skin is warm, as an expectorant or a refrigerant, its value is remarkable (Pye-Smith). Persons who are the subjects of constipation do not as a rule drink sufficient water, whether hot or cold; there is not enough water in the body for the normal secretions and eliminative fluid.

In fevers, diarrhoea, profuse perspiration and menstruation, the free ingestion of water is indicated. It increases hydrochloric acid and pepsin in the stomach, which has been rendered deficient in these conditions.

It has been found that in cases of thermal heat or sun-stroke, where the temperature is excessive, rising to 108° and 114°, a bath in ice cold water with an ice cap to the head is efficient in reducing the temperature, but the desired reduction of heat will come about much more rapidly by giving the patient an enema of a pint to a quart or more of ice water, i. e., water at a temperature of 32°, which may be repeated in twenty minutes or half an hour if necessary. It is well known that the rectum is abundantly supplied with sensitive nerves, which are immediately influenced by a topical application of cold water (Cin. Lan. Clin.).

Magaziner* says the cold bath as a method of treatment for asthenic diseases and conditions is growing in favor. Take simply a woman who has fainted, the pulse is feeble or absent, the respiration is shallow, sensation and motion abolished, the patient's vital powers being practically dormant. The treatment which long usage has so sanctioned that even lay people constantly resort to it is, the application of cold water to the face and chest. Every one knows the result and even the youngest student can give its *rationale*. A reflex stimulus is sent to the nerve centers which produces a deep inspiration, the machinery of life is again started, the color returns to the pallid cheek, the eye brightens, the pulse begins to beat again, and the asthenic condition is cured without further medication.

Another example, a patient suffering from an infectious disease, he has a thready pulse shallow breathing, the dull eye, the picking at the bedclothes, and even involuntary defecation. All these show the very apex of asthenia. Place such a patient in a shallow warm bath and pour with some force one or two basins of water at 75° or less over his head and shoul-

*MEDICAL TIMES, New York.

*W. Z. Magaziner, MEDICAL TIMES, New York.

ders, rub him gently, repeat if indicated, and the improvement will surprise those who have not tried this method of treatment. . . . There is a gasp for breath, the dull eye resumes its luster, the facial cyanosis yields to a better hue, the pulse becomes slower and less compressible; the wheels of life are again set in motion, not as in the case of syncope to remain so, but to be again overwhelmed by the toxic blood which supplies the nerve centers; again and again this effusion must be repeated! Fear not the so-called shock, for this is just what you want to evoke; it is, when judiciously administered, followed by reaction, and reaction is the great stimulus, greater than all medicinal agents or alcoholic stimulants. These are clinical facts, observations made at the bedside; they are at least as reliable as those made on medicinal agents.

Why does the application of cold to the periphery restore tone to a drooping heart? Macey, Traube and other observers have proved that in these asthenic conditions there is a loss of tone in the smaller vessels, a paresis of the muscular coats, and of the elastic tissue which acts the part of muscular coat in the peripheral capillaries. It is well known that the circulation of the blood depends not only upon the vigorous, healthful action of the heart, but also upon the integrity of the arteries and capillaries, by whose elastic resolvency the blood is welled through the finer tubes; the propulsion of blood through such fine tubes would be impossible unless they were endowed with propulsive powers. When this power is held in abeyance, the heart must increase its force to overcome an obstruction at points where it formerly received aid. It is pumping against paralyzed vessels; the blood stagnates in the smaller ones, giving rise to hypostatic congestion, and then is the difficulty increased. The heart labors harder, the pulse rate increases, and its tension is lowered, its forces are exhausted and the heart yields at last to the dread pressure upon its vital forces, which are further sapped by the vitiated blood supplying it. By applying hydrotherapeutic treatment by a cold effusion, dip, spray, ablution, a bath, adapting it to the case, always accompanying it by friction, the result is that there is a local stimulus to the coats of the superficial vessels, they contract again under the impact of repeated cold waves followed by friction; their paresis is removed, they again propel the blood as was their wont. The dam is cut as it were, the blood again flows freely through the terminal vessels, the heart responds to the relief afforded by a slower and more deliberate contraction, higher tension, and absence of diastole. At the same time the central nervous system is bathed by cooler blood, blood which is better oxygenated, and thus there is double good done. The cardiac ganglionic centers receive a new stimulus at one end while at the other the task of propelling the blood is lessened. The pale skin of an advanced typhoid reddens under this procedure and comes out glowing. In chronic phthisis a good illustration is offered of the effect of hydrotherapy in removing the obvious asthenic conditions. Ziemssen refers to cold baths as a remedy of extraordinary value, but clinical demonstration of the value of the cold bath in asthenic conditions is most abundant. In many institutions there has been an opportunity of testing the question in a satisfactory manner in cases of phthisis, Bright's disease, diabetes, and a variety of functional and organic

nervous diseases. The gradual restoration of the reactive power in these cases, together with the improvement of the nutrition, offers most interesting illustrations of the results which may be accomplished by the application of cold water.

In regard to the use of hot water the following excerpt may be of interest: * A strip of flannel or a soft napkin, folded lengthwise and dipped in hot water and wrung out, and then applied around the neck of a child that has the croup, will usually bring relief in a few minutes. A proper towel folded several times, and dipped in hot water, quickly wrung out and applied over the site of toothache or neuralgia, will generally afford prompt relief. This treatment for colic has been found to work like magic. Nothing so promptly cuts short a congestion of the lungs, sore throat or rheumatism as hot water, when applied early in the case and thoroughly. Hot water taken freely half an hour before bedtime is an excellent cathartic in the case of constipation, while it has a soothing effect upon the stomach and bowels. This treatment, continued a few months with the addition of a cup of hot water slowly sipped half an hour before each meal, with proper attention to diet, will cure most cases of dyspepsia. Ordinary headaches almost always yield to the simultaneous application of hot water to the feet and back of the neck.

As to the abuses of water, or the contraindications to its employment, internally or externally, it would appear that a few words of caution might not be inappropriate: In speaking of the dangers of a cold bath a well-known French physician states some facts which it would be well to bear in mind during the bathing season. He showed that a sensation of cold on the skin acts on the circulation of the lower part of the trunk, that is to say the veins, and also on the brain, in the same way as a mechanical or electrical stimulus of the sensitive nerves of the skin. This observation affords an explanation of the fact that a sudden immersion of the body in cold water after a meal, and while the process of digestion is going on, may be attended with danger. At this time the abdominal system is the seat of an intense physiological congestion, and the accumulation of blood in it is suddenly thrown back toward the nervous centers. The consequence may be a disorder resulting in death. *

The object of the cold water bath is to reduce the temperature to a safe degree, that is all; but it is not showing good judgment to attempt this under all circumstances regardless of associated effects. If each application almost causes hysterics, it is not to be used. If the reaction is very slow and accompanied by excessive depression, it is folly to use it in asthenic cases of long-standing. †

Lydston writes ‡ that since the advent of the various theories of uric acid and pathology, and the recognition of the value of the ingestion of large quantities of water in the treatment of the various conditions in which the poisonous products of tissue metabolism are supposed to be the *fons et origo mali*, this simple method of treatment has often been carried to extremes. The following are his conclusions:

(1) While the ingestion of large quantities of

*Bulletin of Pharmacy.

**How to Live," Alma, Michigan.

†Medical Council, Philadelphia, Penna.

‡G. F. Lydston, *Medical News*, New York.

water in various infections is often of great value, the treatment is sometimes extremely detrimental.

(2) The nutritive value of the blood is often impaired by the relative hydremia produced by the ingestion of large quantities of water.

(3) Disturbances of the circulatory and nervous systems are frequently produced by it. So-called weak heart, palpitation, nervous irritability, lassitude and exhaustion on slight exertion are among the phenomena that may result.

(4) Serious digestive disturbance, involving impairment of the secretion and composition of the gastro-intestinal juices, and gastro-motor insufficiency may be produced by the ingestion of water in large quantities.

(5) Edema and anasarca, while often relieved by the free ingestion of water under favorable circumstances, are not infrequently enhanced by it.

(6) Renal water habit may develop, by virtue of which the kidney becomes permanently sluggish unless it receives its wonted stimulus of large quantities of water.

(7) Acute and chronic inflammatory affections of the kidney are sometimes aggravated by giving water in excess simply by overworking the renal organs.

(8) Inflammatory affections of the lower portions of the genito-urinary tract are often deleteriously affected by excessive water drinking through mechanical disturbance necessitated by the resultant frequent and copious micturition.

THE SEX CYCLE OF THE GERM PLASM.

Its Relation to Sex Determination.

BY THOMAS E. REED, M.D.

PART V.

IT has long been noted by embryologists that the developing organism in the womb of its mother passes through many different stages resembling in turn the varied form of animal life constituting the line of ancestry of its species.* The ovum before fertilization resembles the simple organism from which in all probability the vertebrata sprung. We also know that characteristics or variations last acquired are the most easily lost, while those earliest acquired are the most fixed. Functional rhythms are lost much as are physical variations. It is not then unreasonable to suppose that while these functional rhythms, fluctuating according to lunar intervals, may be to a degree lost or distorted in the developed organism, in the protected sphere of the germ plasm they retain all the regularity which characterized the anabolic and katabolic change in the ancestral cells which inhabited for so many millions of generations the seashores and tideways of the earth.

Our attention was first called to this subject some thirty years ago by a well-known physician of Philadelphia, who, in the course of a lecture, made the remark that there was a widespread belief among many

* While we cannot subscribe to the philosophy of evolution as a whole, it is interesting to note how near Darwin came to expressing the hypothesis that these tidal conditions originated the sex distinction, or at least to speculate upon what he might have had to say if the idea had been pursued further.

communities inhabiting the seacoast that children are more likely to be born when the tide is coming in, and the sick die at its ebbing.

He held that there was some basis in fact for this belief. Although under the impression that it was probably based only upon the analogy so evident between the ebbing tide and the ebbing life, the incoming tide and the incoming life, rather than upon any series of observations, we nevertheless determined, as opportunity presented itself, to subject it to test. Our geographical position being inland, lat. 39 north, long. 84.5 west, we took the Philadelphia tide tables as being approximately in the same latitude, and knowing that time and tide advance together, the above tide table answered all practical purposes for making observations from day to day.

It is, of course, true that many points on the same meridian experience high and low tide at different times. The configuration of the ocean bed, the position of a place with reference to the mouth of a river, bays, sounds, gulfs, inlets, etc., make a considerable difference in the time of high and low tide at that place in comparison with some other place perhaps only a few hundred miles to the north or south of it. The tidal establishment of every point must then be calculated separately. Now, authorities are not quite agreed upon just where, with the reference to the earth and the moon, high tide would be found, were the seas of the same depth throughout and the tidal wave unchecked by continents. It is probable, however, that any particular point would under these circumstances experience a high tide at exactly the upper and lower transit of the moon. However, the fact that the real high and low tides do not correspond, owing to the conditions already mentioned, with the theoretic tide, makes no particular difference as far as this inquiry is concerned. The point of importance is the selection of a twelve-hour cycle changing every day in accordance with the tidal or lunar change.

We designated the incoming tidal curve, for our latitude and longitude, the positive or active period, and the outgoing tidal curve as the negative or passive period. On this basis we found that deaths of persons well advanced in years where the end was a gradual one, and uninterfered with by stimulation, showed a considerable percentage in favor of the passive or negative hours. On the other hand, births were more frequent during the period opposite to this one—that is, the active or positive half of the tidal change. There are, of course, a multiplicity of accidents which may delay or promote a birth, but those parturitions in which the course of nature was the least interfered with are the ones here referred to. *Any others, whether they favored the hypothesis or not, were not considered.* The preponderance of births during the active hours is more striking than is the preponderance of deaths during the passive hours. We know of no other condition in which this alternate change of functional activity can better be observed than during the progress of a protracted labor. There are six hours of active uterine contractions followed by six hours of comparative rest. During the former period the expelling or longitudinal fibres are the more active, while during the latter the circular fibres are occasionally brought into play to mold the head or presenting part. The contractions of this period are much less regular and more trying to the par-

turient, and there is apparently but little progress.

Should instrumental interference prove necessary, a knowledge of these changes is beneficial in pointing out the active hours, the time when we believe this interference will yield the best results. Since observing these periodic changes in parturitions a remarkable freedom from perineal lacerations or accidents of any sort has been noted. Were it not without the province of this paper a number of cases might be cited in which this periodic change is strikingly exemplified.

It has been intimated that a lunar cycle which, in the developed organism is rudimentary, lost, or obscured by other influences might, in the original germ plasm, be supposed to retain all of its original distinctness and activity. This is what, in our opinion, has proved to be the case. When it occurred to us that sex might depend upon this periodicity in the organism, just as births and deaths were shown to be affected by it, there went with the thought some considerable doubt, for this periodic change seemed to effect the vital activity of the adult organism, while sex we had always supposed to depend upon some structural characteristic of the egg. However, it was found that in determining the sex the tide cycle was more to be depended upon than it is in the case of deaths or births. Where the time of sexual intercourse was definitely known no failure to predict the sex of the offspring has yet been noted. Coitus taking place during the positive cycle or katabolic change in the germ cell a male is the result, while if during the negative or passive cycle a female is conceived. All those cases in which the time of intercourse was near the turn of the cycle were ruled out, whether they favored the hypothesis or not. Twins of different sexes are the result of two conceptions more than six hours apart, or they may be of the same sex, but both conceived during a negative of positive period, the periods being the same in character, but from twelve hours to two weeks or more apart. Should they be of different sexes, but the result of a single coitus, we believe it will be found that this occurred very close to the turn of the cycle, showing that one ovum was in all probability fertilized during one period and the other during the succeeding period. In one instance a cow, served but once, gave birth to twin calves, male and female. On investigation it was found that the cow was bred at the turn of the cycle. This is the only circumstance of this kind known to us.

Every physician has observed in his obstetrical practice, without being able to account for it, that for periods of several days one or the other sex will show a marked preponderance. This has been noted by us throughout many years of practice. As an instance, from the 23d to the 28th of November, 1892, five births were attended, all of which were females. Counting back to the period of impregnation, it was found that the hours covering the retiring time of the masses were negative. Now, taking groups of boys and tracing back in the same way, it will be found that these hours are positive. By examining city birth records the sexes will often be found grouped in this way. It is hardly probable that this is coincidence.

A number of cases where our patients have been successful in securing the sex desired might be mentioned, while as many more instances of a like success following the breeding of horses and cattle have been observed.

A few of the former class of cases will now be cited.

Mrs. A. had given birth to five girls, and much desired a boy. Sexual relations were permitted at no other time except near the middle of a positive period until pregnancy occurred, with a boy as the result. No attention was paid to diet or the time of the menstrual month.

A couple recently married desired a boy. Sexual union during one month was practiced only in positive hours. Conception took place during this month with the desired result. A year later a girl was procured by observing this rule in negative hours.

Mrs. W., of a Southern State, wrote asking information, as she wished a girl. A list of negative periods was sent her. In due time she reported the desired daughter.

Mr. X., a shrewd but uneducated farmer, had been blessed with a family of boys. He very much desired a girl, and sought consultation with this in view. A list of negative periods was furnished him, with instructions to follow it closely. Nothing was heard from him for about one year, when he happened in the office one afternoon to remind us that our services might be required within the next few days. When asked if he had followed the instructions given him, he replied that he had "got all mixed up on those figures"; he had, however, carefully noted the exact hour and day impregnation occurred. On looking this up, the time was found to have been in the middle of a positive period. He was informed that under the circumstances he must look for another boy, and much to his regret the prediction was verified.

Mrs. C. had given birth to three girls. The proper instructions were given and the cycles were watched with the result that the fourth child was the wished-for boy.

Mr. W. desired a boy. He was furnished a table with instructions. Coition was indulged in for months only in positive hours. The result was twins, both boys, born one-half hour apart, but enclosed in different membranes and nourished through separate placentas. Before the second one was born it was explained to the father that, although another child was expected—a second unbroken membrane appearing—they would not be true twins, and that they would not resemble each other very closely. At birth the first was larger and better developed than the second, and perhaps ten days or two weeks the elder in utero. They are now over a year old and no more alike than brothers of separate births, the smaller at birth being now much larger than the other. A score or more of similar cases could be cited.

We find that the positive hours for the locality mentioned are simultaneous with the rising tide at Philadelphia, negative and positive time cycles alternating. When male offspring are desired, intercourse should be permitted only near the middle of the positive hours; when females are desired observe the same rule, but in negative hours.

We will now briefly summarize our conclusions: In the first section of this paper it was shown that all theories of the determination of sex have proved inadequate, there always remaining residual phenomena which they fail to explain. The sexes were shown to be approximately equal both physiologically and in numbers. Sex is held to be a property of the embryo back to the time of fertilization. Reasons were given for be-

lieving that the ovum is not male or female, depending upon the one selected. The analogies between the sexual organs of the male and female sex, the presence of rudimentary secondary sexual characters, the acquirement of characters of the opposite sex under some circumstances, the wide distribution of the tertiary characters of one sex among the members of the opposite sex, and the inheritance of secondary sexual characters through a parent of the opposite sex, all lead us to conclude that the ovum previous to fertilization is hermaphroditic. The distinction between true or homologous twins and double births was dwelt upon. All the facts lead to the conclusion that the sex depends upon the time of the fertilization of the ovum. The time of the day, week, month, menstrual or lunar, and year is ruled out. The time with reference to any physical or psychological variations in the parents is also ruled out. There remains only the time with reference to the tide cycle or some periodic fluctuation of the germ plasma itself.

In the second section of this paper the opinion was expressed that if the ovum is hermaphroditic, it is improbable that it retains continually the delicate balance between the sexes necessary for the expression of an absolute hermaphroditism. The structure of both sexes being present, it follows that in all probability the ovum functions first in one direction and then in the other. This rhythm is in all probability analogous to the anabolism and katabolism which has been shown to constitute the essential difference between the sexes. The possibility of this rhythm in the germ cell at first depending upon and now synchronizing with the tide cycle is suggested. The conclusion is reached that sex is determined by the time of fertilization, with reference to an anabolic and katabolic rhythm within the ovum. Fertilization of the ovum probably takes place at or near the time of union of the sexes. This rhythm extends over a period of twelve hours, six being active or masculine, and six passive or feminine, and changes from day to day as do the tides.

It is evident from the nature of the case that, at least as far as man is concerned, clinical evidence tending to further substantiate that already given must necessarily be obtained slowly and with considerable difficulty. However, we have given this question attention for a number of years, and while even in that time the instances where it has been possible to learn the exact hour, day, and year of a sexual union resulting in offspring cannot be considered large; yet, we repeat, in every instance where this has been definitely determined, the sex has been successfully predicted. Therefore, in closing this paper, we feel justified in asking any who may be interested to investigate this subject.

Middletown, Ohio, June, 1906.

Defects in the skull can be repaired, declare Allen, Sanford and Dalley (*Bost. Med. and Surg. Jour.*, Apr. 2, '06), by transplanting a graft composed of the outer table of the skull. This is removed with the periosteum attached, and is placed in position over the defect. Union with the edges of the opening soon results; and in animals the bony outline of the skull is fully restored after three or four months. The graft grows in thickness and enlarges at the edges. The methods of Allen and his associates differ from those formerly employed in that graft had a pedicle, which these workers find unnecessary.

FAINTING BLOOD.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

HOUSE-SHUTTING and fire-heating time is at hand. Before another May Day hangs upon the trees her fragrant banners of blooms, the blood of many children and housed adults whom we shall observe will faint to pale and fragile life. The flush and blush of normal health will forsake the circulation, and we shall discover that corpuscular vitality is struggling with the bonds of a famished troth of existence. If our eyes are questful, we will perceive walking and talking semblances of corpses along our daily routine of observation. Besides languor, the nerve tone, the heart endurance, the integrity of cell structure and systemic functions are naturally sponged out by the blight of anemia.

The present writer many years ago learned to grasp for the values of practical estimates of this salient of the situation in every case to which his attention was professionally engaged. To this day he never faces a patient without especially noting the degree of tint or lack of tint in that patient's ear and forehead as indication of the ground floor conditions for remedial treatment. With an impoverished, defective, fainting, dying state of the blood, I can expect none but defective reconstruction and cure of whatever is in systemic disorder. Drugs aimed at subjective symptoms while the blood corpuscles are in fading, dying process, add yokes, figuratively, to the toiling oxen that can no longer successfully pull the load. Badgering an expiring mass with foreign stuffs (drugs) that said mass (blood) is disabled from appropriating to service, is akin to assault on prognostic reason. I have never experienced more acute contempt for medical bluff than in two instances where, in each, a member of my profession hastened in, and before my eyes injected a hyperdermic dose into the arm of a woman already dead before the arrival of the hustling medicus, so overcome by eagerness to catch on to the opportunity of an emergency call.

In talking now of anemia, the writer does not profess to great willingness to thrash over intangible straws of theories advanced by "many men of many minds." A physician's desire for the plain kinship of common cause and prompt relief may allow him little time for extended read-ups of learned and eminent authorities so competent to discuss and so prone to confuse. Most of us who are in the fatigue field of service may round out just as successfully with a careful mental view of the problem before us, and by the adoption of a rational working process of our own, on lines that are essentially simple and safe. To many of us independent study on the spot is the best developer of understanding that we can embrace. If, by the dull pallor of the skin which yields indifferent color-response to friction by the finger, we realize that the blood corpuscles in the circulation are sick and fainting, and that something injurious in the environment of the individual has subtly blanched and dispelled the vital elasticity that should characterize the normal feed-current of the body, then the primary work most needful for us to perform is appealingly looking us in the face. There can then be little excuse for me to squander valuable time in merely scrapping with clamors of chronic disorders of any form or phase of fussiness, if I neglect

to first cure the disordered blood that traverses all the tissues involved in every function.

Anemia indicates not only impoverished blood, but defective and disordered metabolism, constructive and destructive, in the physical economy—degree for degree. "Leukemia" has been adopted as the conventional designation for a distinct form of anemia. Shavings peeled off a piece of wood by jack-plane present many varieties of fibre form, but the real wood—the nature—is essentially the same in all. Thus authors have written out really fanciful varieties of anemia arbitrarily assigned to differing origins, because attended with differing local phenomena; but the radical nature of the constitutional ailment is essentially on the same line of default. Hence to the meat of our study. The whitened, sick, possibly dead, corpuscle in leukemia has been termed a leucocyte. It does not convey nutriment into the economy, but naturally becomes a waste corpuscle to be ejected. Somewhat ago it was the theory that these colorless cells "constitute the guardians of the organism" by virtue of carrying from the system foreign material; but a fainted or dead corpuscle is in itself foreign material. An aggregation of such corpuscles naturally disposes to physical and functional disorder.

From experiments made by Dr. Claypole it has been declared that the leucocytes are "the true scavengers of the body." This inference is based on the fact that carbon—lampblack—which had been injected into the cavities of salamanders was, subsequently, encysted in leucocytes, found in the blood, spleen, kidneys, liver, lungs, stomach, skin. Ingested cells were found free on mucous and epidermic surfaces, in excretory organs of waste products, showing rather, as I take it, that leucocytes and the carbon were ejected together as waste material or foreign matters. But an important gist, which this interesting experiment does not refute, leads to visible inference that absorption of the carbon by the blood cells not only made them sick, but converted them into dead "leucocytes," which were gradually drifted out of the economy as foreign waste with the carbon they carried. We have the right to question whether a non-oxygenated blood corpuscle, devoid of vital energy, will naturally and readily coalesce with other foreign dead matter, as with the lampblack in this experiment, and thus conduce to aggregation of debris in different organs unless completely eliminated. To defend the blood from the encumbrance of depraved corpuscles, to rescue the organs of the body from the depression of anemic blood, we must seek the fullest degree of persistent oxygenation practicable. A blood corpuscle may wear out, become exhausted, become a corpse in the circulation—why not?

But another sequence. According to Henry, leukemic degeneration of the blood in anemia is attended with "infiltration and nodular deposits of leucocytes" in the substance of the liver and kidneys and on their serous surfaces, and on the mucous membranes of the air passages and stomach; also "the peritoneum may be covered with gray, semi-transparent nodules in size from a pin's head to a pea, so closely resembling tubercle that the absence of the bacilli may be the only differential point. The minute structure of the nodules of this leukemic peritonitis may also resemble that of alveolar sarcoma." The chain that breaks has a defaulting link. The important microscopical testimony

by Henry very materially confirms my own opinion that the degeneration of sick blood in anemia, independent of bacilli, often results in such malnutrition as tends to destructive diseases—especially tuberculosis and cancer. Now I hear the objector. But tubercle is not made from nothing. Where does the material of tubercle come from? How is the depravity of cancerous formation derived? Why would not devitalized blood corpuscle be naturally transformed into tubercle in any part of the body where blood circulates and its corpuscle corpse is stranded? Why does not degenerate blood corpuscles start the nuclei of cancerous drift in any part where any form of cancer obtrudes? And why should any resulting bacillus sentiment have anything more to do with the development of tubercle and cancer-making than the squirming "eels" in vinegear have to do with the sentiment of cider-making? We prevent anemia or the death of blood corpuscles, we prevent tuberculosis and the scourge of cancer, by continuous and perfect oxygenation of the blood current through the defensive office of pure breathing air. It is the multiplication of and devotion to our modern methods of spoiling the breathing-air of families that must account for the increasing prevalence of consumption and cancer. A highly vitalized corpuscle holds the field against the foes that undermine health.

I hear that friendly parley about when the ubiquitous bacillus was actually discovered it was supposedly accepted as the future ruler of the minds and lives of humanity—the infestive root of all physical evil. But the fainting, devitalized blood corpuscle of anemia is a rudimentary affliction. It evidently becomes a *de facto* element of debris which may take various drifts, one of which may naturally be transposition into tubercular matter through the conservatory economies of the system, especially in direction of lung cells that failed to supply sufficient oxygen with the air inhaled. Prior to softening and ulceration, the presence or absence of bacilli argues nothing definite, since no authority proves that a particular form of bacillus vegetates on tuberculous deposit in the lungs before softening occurs with its attendant ferment and waste. A microscopic vegetable spore cannot produce carbonaceous fatty deposit like tubercle. The induction of common anemias is quite a self-evident process—in condensed abstract, one of the home-made and business-made disorders. The common poisoners of the people's breathing-air are the fuel gases inhaled, the smoke and soot and fuel-ash in the air, stale house dust, feculent crowd-air, excremental impurities in re-breathed air in close bedrooms and work shops, musty carpets spoiled by the heat and damp of dog-day weather, cellar mould, privies, stables, sties, animal stench. All these plant the blanch of dethroned vitality, with its "nodular deposit of leucocytes," its spread of tuberculous waste and march of consumptive deaths—population starved for the refreshment of clean air.

Another virulent output from the sick blood of anemia, but indifferently recognized in connection with its source and cause, is toxic crystalization, the sublimation of retrograde disorganization, the toxicosis or self-poisoning process inherent in persons with a stagnation of elimination from every cell and pore of the body. Investigative minds cast about to discover a reason for this grave condition, and certain bacteria were found in various relations. Since the bacteria themselves seemed

relatively harmless, and inference is as facile as any rope-skipper, the rambling conclusion was jumped at that the poison of bacteria in the body consisted of bacterian excrement! At once it devolved on medical genius to "fall in" hard on the microbe with supposed germicidal drugs and sprays to sweep the germs out from their lairs and end their march of disease. Pursuit was soon confused and baffled. The makeshift that it was bacterian excrement, resolved into ptomaines and leucomaines, which operated as an auto-poison in the system, gradually retreated from its firing-line of germicidal assurance. The same old sixpence that sidled around from journal to journal is seldom met with these days. The ambition was acute to discover something in the body that caused its diseases, instead of discerning the injurious elements that reached the blood with daily breath, and which make it either better or worse, as the constructor or destroyer of the health of the body. Bacteria excremental poisoning? Another tilt of facile inference? Who has discovered in bacteria the functions of digestion, nutrition, excretion—hence why excrement!

Though differing from his purpose, we can transpose a valuable lesson from the authority of Dr. Henry on anemia. According to Henry, Charcot, Damon, and other investigators, in the leukemia of anemic blood, elongated, octahedral crystals are found in the blood, crystals of organic nature, some of them "twice the size of the red blood corpuscles in the same field of view." Leyden, in 1871, found these crystals also in the sputa of asthmatics. Now we will remember that there is a chemistry in the human body by its own laws of evolution. There are chemical reactions and resolutions inevitably corresponding to the conditions which prevail. Instead of making a fetish of incongruous guess about bacterian excrement to account for obscure symptoms and failure of medicine, I claim that it is more logical to discern that any and all non-oxygenated waste residue in the system must naturally become harmful and toxic. Such material may often become sublimated, by chemical evolution, into crystals as poisonous as the *materes morbi* from which said crystals were evolved—and an auto-poisoned status holds the physiological field of difficulties and suffering, unless swept aside by the relief that a healthy standard of blood corpuscles can establish. It is proven by the authorities above cited that in leukemic degeneration of anemic cases, crystals as described were floating in the blood, and were also, I have no doubt, therefore launched in various organs, since Leyden observed them in the sputa of asthmatics. Asthmatics are often respiratory complications of anemic conditions: the grasp and struggle for increased oxygenation of the burdened, unrefreshed blood, and for relief of contracted air-cells and air-tubes from inhaling gaseous and dusty irritants in the breathing-air—and this so often in the night house-air. At the present stage of medical comprehension there is nothing so needful as a more vigilant study of the prevailing causes of anemic blood and its extensions of complications among patients. The oxygenation standard of the corpuscle must ever measure the depth and endurance of the vitality if other conditions are normal. Although the blood is the tissue-builder, it can dominate the reconstructive process only in the way it is dominated by the agencies which determine its corpuscular health.

In Professor Ebert's study of transition forms of white into red corpuscles in the blood, he found in cases of leucocythemia the increased number of white corpuscles depends both on increased production and on retarded transformation into red corpuscles. He concluded from his ample examinations that white corpuscles are directly produced by altered conditions in the blood itself. This is a valuable point as far as it goes; but Professor Ebert would have made his investigations of more practical advantage had his study included the natural causes of the altered conditions of the blood which result in the increase of white corpuscles or anemia. There can be no reasonable doubt that many of the white corpuscles are blanched and sick cells which have lost the sanitary estate of red corpuscles or have failed to attain it through lack of adequate oxygenation. Dr. August Waller, an English physician, in 1846 published remarkable data showing that white corpuscles pass out of the capillaries and become identical with pus cells. His examinations demonstrated that mucus and pus show that they contain a large quantity of corpuscles, which are entirely like the white (or sick) blood corpuscles. Hence he held that the expiring white corpuscles are identical with mucous and pus corpuscles. By an entirely independent course of experiments in inflammation and suppuration, as published in Virchow's "Archiv." in 1868, Dr. Cohnheim was convinced also of the identity of pus with white corpuscles of the blood. His published data were remarkably able and thorough; his tests unmistakable in showing that pus cells, launched in a local inflammation, were carried there through the agency of the blood vessels. He also found blue nuclei in the blood the same day on which he injected aniline into a lymph sac, and more on the next day; far the greater number were found within the colorless blood cells. By counter experiment, injecting aniline blue into the blood, the result was the same as after injection into the lymph sacs. A considerable number of white blood corpuscles took up pigmentary nuclei into their interior, and even weeks after the injection these pigment-bearing pus cells were moored in the radius of a local inflammation in another part. Sick corpuscles stranded in sick locations. These pigmentary bodies, either free or within cells, were never found in the normal tissues. A languishing, fainting corpuscle stranded in the mire of hindered circulation.

The accumulation of white or blanched corpuscles is driven along the walls of the capillary vessels. This is doubtless due to their attraction toward the surface walls of the vessels, and from the pressure of the healthier red corpuscles through the middle channel pushing the colorless languid corpuscles from the middle of the current, or against the walls, as drift. Here the white corpuscles get through the mesh work of the capillary walls—penetrate by transudation through openings or canalicular gaps expanded by the dilation of the walls, gradually fill the tissue densely, finally reach superficial surface of serous membranes where they join transuded plasma in forming the characteristic debris found as the product of inflammation. This explains why suppuration remains bound to the connective tissues, and why suppurative processes run their course in the interstitial tissues of organs. In view of the foregoing I believe that diseased cells, in the blood current or outside, are always the equivalent of foreign

matter to the vital economy. Nature does not passively surrender under aggression. Striving to deliver herself the best she can from irritating impedimenta, transuded plasma is often reabsorbed, and extravasated lymph corpuscles again leave their place of deposit, distribute themselves in the vicinity and among lymphatic vessels, conservatively changing base to reach a more responsive channel of exit. Lifeless cells emigrate. *Cohnheim says that in cases of nephritis pus cells appear in the urine without autopsy revealing complication with cystitis or pyelitis. Evidently the dead cells were thrown out from the blood current at the most available means of exit. By analogy we see how sick and lifeless cells induce local turgescence of the vessels where the irritation of collected cells ferment a siege of local inflammation, and obligating a stress of alternative function to relieve the system of suppurating corpses. The supreme preventive of inflammation, suppuration, abscess, tuberculosis, cancer, and all the other physical degenerates is vitally oxygenated, healthy blood corpuscle. How simple the problem!

For the time overlooking the fact that blood corpuscles are deoxygenated, devitalized, in the round of their circulation, Cohnheim was disposed to the view that the development of pus cells had its seat in organs productive of colorless blood corpuscles—the lymphatic glands and the spleen. But to assume that the lymphatics and the spleen are developers of the pus cells is a physiological heresy. Colorless blood cells, in transition advancement from chyle, present color when oxygenated and hematinized. What occasion could exist for the lymphatics and spleen to generate or develop pus cells, while blood cells are fainting for oxygen, are being poisoned with carbonic oxide gas from combustion of fuels or illuminants, or suffering spontaneous decay from non-eliminated impurities in the system? These and similar are sources enough to account for development of pus cells or dead matter in the human organization. The ferments incident to the resolution of this dead matter are but a natural sequence to its existence in the blood and organism. To return to Professor Cohnheim's investigations, in all experiments relative to the extrusion of the white corpuscles through the capillaries, no trace of rupture of the vessels could be detected. At the spot under observation the walls transmitted these corpuscles by thousands through dilatable spaces in a few hours without local injury to the capillary. He points to pneumonia, during the course of which, he says, enormous quantities of pus corpuscles may accumulate in the pulmonary alveoli, without trace of injury to the surrounding tissue, and without the flat epithelial cells of the alveoli showing anything which could justify one in looking to them for the source of the pus corpuscles. These investigations by Cohnheim were confirmed by Hoffman, in a work on "Pus Formation"; also by Professor Thiersch, and others in various papers subsequently published. Herring asserts, with detailed explicitness, that experiment convinced him of the penetrability of walls of capillary vessels; that the extreme softness or elasticity of blood corpuscles allow them to assume changes of form under modifying influences of the blood current, and permit of their coaptation and apparent union in vessels where stasis occurs—and afterwards resume their proper form when released. He believes that the accumulation of the colorless corpus-

cles at the periphery of vessels is due to their viscosity, which causes them to moor along the walls and adhere among themselves; and that pressure in the blood current causes these colorless corpuscles to enter and pass through the dilatable spaces in the wall tissues in manner elaborately described by Cohnheim.

I present the foregoing condensed abstracts because they afford us precise glances at the mode by which conservative nature may transfer from the circulation material unfitted for nutrition, fainting and dying corpuscles, pus corpuscles, shifting such debris as cannot be reoxygenated, to locations where mischief may be temporized and results less disastrous. On the basis of this explanation it is readily seen why blood of low or exhausted grade becomes a corrupting source of localized inflammation and of pus formations outside the real blood channels, and where life may be defended by evacuation of accumulated putridity. We are seeking practical facts. Under many ordinary circumstances of life, if there was no special self-maintained disgorgement of rapidly produced debris, except what is accomplished by faulty aeration in the lungs and through the half torpid emunctories, the vital functions would often be hurriedly overwhelmed by the aggregation of devitalized corpuscles whirled into organs with the current of general circulation. Besides throwing a whiter light on the occasion of abscess and of puruloid accumulations in sero-sack spaces, this exposition also portends the natural rationale of gastritis, dysentery, catarrhal fluxes of degenerate function in various parts of the body, pulmonary disintegration, in fact, the common phenomena of unloading deteriorated material from disordered physical conditions. It may make little difference where people or families abide, in one variety or another these decaysome conditions are found. When one has trained the comprehension to recognize the significance and symbols of anemia on sight, he will repeatedly be surprised at the numbers of pale and bloodless faces, especially among women and children, that characterize our modern civilization. This pallor and peculiar sallowness of skin is quite as pronounced among country folks as among residents of towns and cities. In my own experience I treated more cases of abscess developed in different parts of the body when my practice was in the country and including rural districts, than since my work has been in this city.

I am only one among brethren. By comparison with the earlier days I saw more dysentery and typhoid, more croup and asthma, more glandular swellings and more abscesses in the country than has appeared in my later city practice.

We all naturally exclaim that the country air is so pure and buoyant, so promotive of good health; and so it is, when far enough away from local nests of feculence. Farmers usually look comfortably ruddy and rugged, prone to marry second wives. But enter their houses. Wives with pallid, dull skin, often neuralgic, complain of stomach and liver; younger children bleached and wheezy with throats and catarrhs. Since what is has a cause, let us study environment. Husbands out in the open fields, on the roads with their teams, in their houses only to eat and sleep. Wives and little ones hanging around the fires, cooking and washing and minding babies, inhaling fuel gases with the heat and taking in the steam of boiling suds and the fumes of cooking foods. Outside prevails the stench of chick-

en coops, hog pens, cow stables, barnyards to infect the air of every breath indoors. And there is the outdoor privy probably with little or no excavation beneath the seat! The pollutions of casting out upon the soil in proximity to the house of all slops, dirty suds, contents of chamber vessels and cuspidors when no longer endurable inside. The wife dividing her time between the house work and the cow yard and chicken coop and pig swill-trough. The parlors and spare bedrooms shut up from sun and flies in warm weather, growing daily more damp and rancid and mouldy! Who of us have never gone into such a country house in summer? When we have done so, we will understand the anemias we meet in the country. And there come obstinately the dysentery and the typhoid. We look outside a minute in perplexity. There it is—the well ten or twenty or forty feet deeper than the privy and barnyard with their accumulated feculence filtering its pernicious way into the water veins that supply the house with its cool bounty for drinking and cooking. Fainting blood corpuscles, anemia, is as common to such country locations as in infectious town and city air. It need not be so, but it is so, because hygiene has been given little or no study in grouping farm conveniences. Before the introduction or installation of public water supply from distant reservoirs for family service in country towns, every dooryard had its privy and its deeper water well, with an occasional stable besides. And they blame the Lord for sending their sickness! Their local air is constantly fouled—but a few flowers occupy the attention instead—while the life insurance agent is busy collecting monthly dues to patch out the need for the undertaker. Do we yet need to go spying for a "BACILLUS" to teach us the cause of disease?

The man who thinks for himself is the man who can see for himself and "do things" at short range for the betterment of the world. Anemia? The neurasthenic diathesis has its basis in the anemia of population. Nervous irritability, physical break down, functional perversion, blood disorders, the malignancy of eruptive disorders usually termed "contagions," the septicemias, the cases of "blood poisoning" from the scratch of a nail or the shaving of a corn forcibly illustrate the impurity and gravity that abide in unhealthy conditions of the mass of blood corpuscles in such instances of illness. To the eye of ordinary observation, the milder grades of anemic impoverishment are passed by with unconsidered meaning. Local and divergent symptoms are then prescribed for with repeated encouragements. It is when approaching a case so pale and wax-looking that the mirror of death gleams in the glassy eye, and the patient looks too white to live, that the vital default in the blood is recognized, and memory of a text-book barks back speculation about "pernicious anemia." An idiopathic cytostasis or filling up with white corpuscles is diagnosed. "Progressive anemia" is then talked about as though anemia was or could be naturally, perversely, aggressively induced by itself. Blood stuffs are then urged into the circulation for its repair. But unless the causes of deoxygenation are scrupulously studied out and effectually abated, the continuance of the cause will out-dog the remedy and the sufferer fail of cure. When we step aside an hour from ordinary circumstances of routine thought, and consider the import of the whitening face, the bloodless ear, the ivory forehead, defaulted blood-corpuscle, progressive decay in the dwindling

stream weakly coursing through heart and lungs, we will begin to realize that no narcotic, no extended purging, blistering, cutting with knife, laving with iodides and mercury, fumigations to trap bacilli, anti-neuralgics for stifling the cry of pains, can physiologically reach or obliterate the vital lesion to corpuscle and nutrition, by avoidance of which the comforts of health are realized. All anemia is pernicious to the extent of its existence. Anemia is like hunger—foolish is the man who essays to define the technical differences of starvation.

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MORPHINOMANIA AND KINDRED HABITS.

BY J. HOWE ADAMS, M.D.

AUTHORITIES vary greatly with respect to therapeutic details and the great lines of treatment of "the habits." It is peculiarly the field of operations of the quack and the charlatan, from the so-called "White Ribbon" remedies to be given secretly in tea or coffee to voodoo methods.

In the first place, the peculiar mental condition of these habitues is not studied as much as it should be, which explains the discrepancies of many cures reported by practitioners who are but little experienced in this line of work. Especially is this true in morphia cases. Here we find a peculiar psychological condition similar to hysteria, which forces the patient to try instinctively to deceive the physician. In three cases out of four the patient will try to get extra doses; he always wants it just for that day; next day he will stop this backsliding, and so on from day to day this self-deceit continues, although he fully knows how impossible cure is under these conditions. Hence the doctor is deceived; while he is reducing the dose the patient increases it, so that when the attending physician pronounces the case cured the patient may be taking more drugs than ever. The patient will thank his physician, compliment him, and pay his bill, and yet he knows how false the cure is. So the working rule to make is, "The word of a morphine habitue is utterly unreliable." There are two ways of discovering the truth: first, analysis of the urine will reveal morphine if the dose amounts to two grains daily; and, secondly, uninterrupted continuous surveillance for long periods will show the attitude and bearing. The state of the pupil may reveal nothing, for patients have been known to take atropine to disguise the true condition. In the average practice, even with the most efficient suspension, not more than one case in four can be really controlled. Physicians are largely victims of misplaced confidence in these cases.

Opium eating seems to be the normal condition of the Oriental. His nervous system stands it better, and its dreamy states suit his mystic nature well. Again, alcohol is forbidden among Mohammedans, and to an extent among Buddhists, Hindoos and Moslems. The extent of opium eating in Asia is shown when in one town, Samarang, eight thousand pounds have been consumed monthly. The license fees in India have amounted yearly to nearly five hundred thousand pounds sterling, a stupendous amount, beyond the bills of our own alcoholics.

On the people of the Occident opium acts with far greater poisonous effects. The superior nervous systems of the Caucasian are much more exposed to injury

than the sluggish system of the Asiatic. American children are accustomed to it from infancy, in soothing syrups, in "baby friends," in paregoric, and in laudanum—as the old minstrel song said, "Paregoric by the bottle, emptied down the baby's throttle."

Physicians seem peculiarly exposed to temptations from this source, for opium is an anodyne and stimulant; it increases for a time the power of endurance and it brings sleep or suffering from some painful affection the hypodermic injection of morphine becomes quickly very soothing. I have been told by physicians that they were as much slaves to morphine, taking a sixth of a grain at a dose, as later taking five, ten, or fifteen.

Jouet collected one hundred cases where the habit followed the therapeutic use of morphine; thirty-two were cases of ataxia; twenty-four of neuralgias, especially sciatica; eight of asthma; two of dyspepsia; nine of painful tumors, etc. So we must remember our responsibility, for a large proportion of cases follow the use of the drug as a medicine. Here is another working rule: Never let your patient know he is taking opium in any form. The use of codeine is excellent, even if for no other reason than the patient does not realize it is a sister to morphine.

Sex and age have little influence on the habit—a baby may have it, or an old man. It is not usually most common between thirty and forty. Kane, years ago in a work, "Drugs that Enslave," claimed that women were far more likely to be victims than men, owing to their liability to nervous disease. Yet, on the other hand, Sevinstein, in one hundred and ten consecutive cases, had eighty-two men and twenty-eight women. Sevinstein believes that familiarity with the use of drugs exerts a predisposing cause, for of this series forty-seven were in persons connected with the medical profession—thirty-two doctors, eight doctors' wives, one physician's son, four nurses, one midwife, and one medical student.

We can divide the symptoms of the confirmed opium habit into two groups—the symptoms of chronic opium poison, and the symptoms due to the withdrawal of the drug.

In chronic opium poisoning the individual, for a longer or a shorter time, preserves the appearance of moderate health. After a time, however, the appetite and general nutrition fails, emaciation becomes marked, while anorexia and thirst develop. The skin becomes dull, relaxed and inelastic. Herpes zoster may appear if the patient uses hypodermic injections.

There is a peculiar brilliance of intellect at times among these patients following the ingestion of the drug that I find very little noted in the text-books. The mind thinks fast, the imagination flows on and there is a general feeling of bien-etre, only to be succeeded by a dull, sluggish frame of mind. Here morphine has just the opposite effect from what it has on the normal individual. The heart's action is apt to be irregular and weak, while disturbances of the vasomotor system causes flushings and sweatings.

The progress of the habit is steadily onward as a rule. Finally, the drug fails to relieve the condition and a period of severe mental and physical derangement sets in. This, unless relieved, ends in death by inanition, or, very often, in suicide.

When the drug is withdrawn general malaise, progressive restlessness, profound depression, precordial distress, pallor or cyanosis, all appear. The heart's ac-

tion becomes slow, irregular, and thready. Intellection is slow, speech stuttering or hesitating.

It is hard to diagnose this habit unless some clue is given by the patient or his family. Close inquiry is sometimes necessary to confirm the diagnosis. It is extremely difficult to get the truth as to the dose. The prognosis is good as far as discontinuance for a time, but bad as regards a permanent cure, for relapses are common.

When we take up the treatment of the morphine habit we undertake a difficult, trying and embarrassing work. The physician has a tremendous responsibility. Undoubtedly, many cases result from medicinal use of the drug, and the doctor has an amiable weakness or thoughtlessness. The physician must decide for himself in what class of cases he can use the drug with safety. But we must remember that at best the practice is a dangerous one. When it comes to the cure of these cases, the doctor should not hamper himself. Home treatment is a problem; some patients seem to be cured there, but the cases are the exception. It is hard to maintain discipline in the home; friends and relatives are constantly interfering. A private asylum or well-lighted rooms in the upper part of a private house are to be preferred.

There are two recognized methods of treatment: the gradual diminution of the dose, and the abrupt suppression of the drug.

If it is decided to isolate the patient, it should be arranged that his room be so arranged that he cannot commit suicide, with everything of the pleasantest, simplest character. From the start the patient must not be left alone; for this purpose two attendants are needed, one for night and one for day service. They must be skillful and firm, and of a character to withstand bribes. Make the break with the patient's family as complete as possible. No letters should be allowed, and visiting should commence only when convalescence is well established. Driving and walking are excellent, when the patient's health allows of their use.

The direct method of abrupt discontinuance of the drug has been called the "method of Sevinstein," from the name of its chief advocate. In the words of its principal adviser, the following directions should be followed:

Upon admission the patient is given a warm bath, during which time careful examination of his effects is made by a responsible person for the purpose of securing the morphine which the patients, notwithstanding their assertions to the contrary, frequently bring with them. These measures of precaution are by no means unnecessary. An officer had saturated his cigarettes and cigars with a solution containing opium, and smoked for twenty-four hours almost without interruption. Another officer had slipped morphine between the soles of new slippers. Other individuals concealed immediately after their arrival morphine in powder in the upholstery of the sofa, upon the canopy and in the ventilators of the windows. Other patients enclosed morphine in envelopes of thin paper, which were placed between the leaves of their books, stitched it into the folds and lining of their garments, etc.

The first symptoms of the withdrawal of the drug show themselves in delicate individuals at the end of three or four hours, and in robust persons about fifteen hours, after the last dose. These symptoms consist of malaise, restlessness, a sense of muscular tension, chilly sensations, and the like, but do not demand treatment. As soon as shivering commences the patient must be put to bed—a measure to which, as a rule, he readily assents on account of the sense of muscular fatigue now experienced. For the relief of the headache, which is rarely absent, applications of cold water or of

ice or ether-douches to the forehead may be employed. For the distressing gastralgia compresses moistened with chloroform may be applied to the epigastrium. The colic, which is often distressing, may be treated by sinapisms or hot compresses. The nausea and vomiting and epigastric distress, which are apt to continue for several days, may be treated by a solution of bicarbonate of sodium with tincture of nuxvomica and essence of mint. If the vomiting be excessive, recurring twenty or thirty times in the course of twenty-four hours, small doses of morphine by the mouth must be given. If by reason of the continued vomiting and inability to retain nourishment dangerous exhaustion develops, nutritive enemata must be administered. The diarrhoea requires little treatment during the early days. If, however, it be excessive and persists beyond the third or fourth day, large enemata of warm water of a temperature of 98° F., repeated two or three times during the day, are attended by excellent results. The insomnia, which constitutes a most distressing symptom, defies every kind of treatment during the first three or four days. During this time prolonged baths are not well borne, and even when they are employed they scarcely produce more than half an hour or an hour of sleep. Chloral is also, under these circumstances, inadmissible, whether administered by the stomach or by the rectum. It does not induce sleep, and its employment is very often followed by a very high degree of excitement. After the fourth day it is well borne by many persons, and manifests its usual hypnotic property. Warm baths of five minutes, followed by cold effusions, exert an excellent influence upon the general debility and mental depression of the first days. The objections of patients to these baths cease after they have experienced the excellent results which follow their use. During the bath stimulants, such as champagne, port, and hot bouillon, may be given. Care must be paid to the alimentation from the very beginning of the treatment. During the first days liquid nourishment should be given, and abundance of wine and other alcoholic beverages, according to the previous habits of the patient. Some nourishment is to be given every hour or every two hours. Many patients experience an intense craving for alcoholic drinks; others, on the other hand, are unable to take them. To the former, wine, beer, etc., may be given freely during the first three or four days; to the latter a restricted milk diet may be given, one to two quarts in the course of twenty-four hours.

Another method, similar in character, is that of Erlenmyer, who used the rapid reduction method, supplementing it with a special bromide treatment, taking a week or twelve days. The trouble with both these methods is that they are attended by indescribable suffering, and often serious danger, even collapse and delirium tremens. The collapse demands immediate treatment, for the pulse grows feeble, small, gradually diminishing in frequency with a slowing of the respiration. Inhalations of ammonia and the administration of aromatic spirits of ammonia, brandy, hot coffee, with friction of the surface, may bring about a reaction. As a rule, it is often necessary to administer morphine hypodermically. In delirium tremens, treat the symptoms as they arise.

In the gradual reduction of the drug, various plans are suggested. Ball and Jennings withdraw the drug, using the spymograph, giving heart tonics as they are required. They prefer sparteine on account of the facility of using it hypodermically. Jennings prefers, if possible, digitalis by the mouth.

This is Professor Jennings' description of his method:

To take, then, a patient injecting, say, 20 grains of morphia a day. By way of preliminary the patient gives up syringe and solution, and consents to any search that may be necessary that nothing of the kind is secreted. He has agreed to submit himself to constant supervision, and as regards morphia he has the assurance that there shall be no compulsory reduction. In case of exceptional suffering, an extra amount will be given. For if on the one hand it is essential that there should be constant surveillance to guard the patient

against giving way to an unfortunate impulse, on the other hand he should be made to understand that it is by his own free will that he carries out the programme from day to day and makes his progressive decrease. For the first few days he would reduce by a grain daily, having perhaps begun by an initial drop of from 3 to 5 grains. As soon as a grain becomes irksome half a grain, later on a third, a fourth, and finally a sixth would be a sufficient reduction. Tinct. of digitalis in small doses should be given as soon as the heart becomes sluggish, and continued as required. Very frequently there is some little difficulty in proceeding further, at about 4 grains, but by allowing a break in the progression of a day or two, with perhaps even a fraction of a grain extra during this time a rest is obtained, and the treatment resumed smoothly. At about 2 grains almost invariably comes the first real difficulty, and if there were no way of turning it very few patients would get below this figure. As a matter of fact, however, henceforth the hypodermic suppression proceeds uninterruptedly. Henceforth for every sixth of a grain suppressed hypodermically, twice the amount must be given by the mouth or rectum. This may seem like a retrograde movement, inasmuch as in the course of the next twelve days the quantity of morphia will be doubled, but in reality the great matter is the giving up of the syringe, and this is always effected without the slightest difficulty. Whatever little miseries may occur, later or earlier the patient never feels so satisfactory an effect from his ration as at this time. Once the hypodermic injections are set aside, the supplementary doses are gradually reduced to zero, and if the progression is properly carried out, the cure may be successfully accomplished with but a night or two of restlessness, or requiring hypnotics.

In the course of the treatment there may be occasional restlessness, which is intensified during the last few days, but there need be nothing like suffering if a sufficiently slow progression is adopted. Indeed, many cases have been communicated to me where the cure has been operated unknown to the patient.

The mental state of the patient calls for the display of much firmness, tact, and gentleness on the part of attendants and physician. Everything should be done to inspire courage and hope in the patient.

Many hospitals have a nice way of reducing the amount of opium. Most patients can estimate the dose they are getting, unless it is disguised in some way. To do this, mix the morphine in powdered form with powdered quinine; both are white and the bitter taste of the quinine effectually disguises the other drug.

The brilliant Benjamin W. Richardson made the prediction within two years of Liebreich's discovery of the medicinal properties of chloral, that it would be abused and that a "habit" would follow its continued use. This has proved too true. It stands next to opium and alcohol in the extent of its use. It is used largely by the more educated classes of society; its fascinations are unknown to the great mass of the people who fall back on alcohol for their dissipation. As with opium, its use is due to its continuance after the illness for which it has been given has ceased. Many druggists are culpable here, for they continue to dispense the drug to patients when they know the real need for it has passed.

Chloral in its use has less effect than opium or morphine; the craving for it is less intense and other drugs easily satisfy the patient at times. Derangements of the digestive system are common, but not necessary; they are due to the direct irritant action of the drug upon the mucous membrane of mouth and stomach. It affects the circulation, weakening the vasomotor centre and slowing the heart's action. Hence flushing of the face, congestion of the eyes and fulness of the head are common symptoms. The blood shows signs of anæmia, and dyspnoea is common. Unlike opium, the hypnotic effect is usually maintained, so that the patient is dull, apathetic and inclined to neglect his daily duties and

cares. Headache is a very common symptom, and vertigo is often experienced. Sensory disturbances are often present, such as local regions of hyperesthesia or anesthesia, formation of the surface of the body and neuralgic pains.

The transient stimulating effects of opium or morphine are not seen in chloralism, and the symptoms produced by its abrupt discontinuance is not severe generally. Insomnia is the chief complaint, while headache and neuralgias are increased. As with morphine habitues, chloral takers are persistent liars, and can conceal their vice adroitly. Prognosis under treatment is excellent, but untreated it is highly unfavorable.

In the treatment it is best to stop the drug at once, and supply its place for a few days by alcoholic stimulants. Systematic feeding, full doses of quinine and strychnine are necessary, while it is well to treat the other symptoms as they arise. The patient should be isolated and cared for by a watchful attendant.

There are other drugs which enslave as well as the classic three, alcohol, opium, and chloral. One of these is paraldehyde. It is often taken as a substitute for chloral. Wilson relates a typical case of this habit, as follows:

The patient, a young married woman whose family history was bad, her mother having died insane, contracted the chloral habit after an acute illness. After some months a cure was effected without great difficulty. She relapsed into chloralism after a second sickness which was attended with distressing insomnia. The habit was again broken up. In consequence of over-exertion in social life during a winter of unusual gayety insomnia recurred. For the relief of this condition, paraldehyde was prescribed with success. Notwithstanding its disagreeable and persistent ethereal odor, and the precautions taken by the physician, this lady managed to secure paraldehyde at first in small quantities, afterward in half-pound bottles from a wholesale druggist, and took it in enormous amounts, with the result of producing aggravated nervous and psychical disturbances corresponding to those produced by chloral, but without the disturbances of nutrition attendant upon the abuse of the latter drug. The patient remained well nourished, retained her appetite and digestion, and was free from disorders of the skin and the intense neuralgia which had been present during both periods of chloral abuse. She suffered, however, from a persistent binding headache, disturbances of accommodation, phosphenes, and brow-pains. Under the influence of moderate doses she was enabled to take part in social life with some of her old interest and vivacity. The brief intervals of abstinence which occasionally occurred were characterized by distressing indifference to her friends and surroundings and by apathy and depression. At frequently-recurring intervals the indulgence in excessive doses, constituting actual paraldehyde debauches, was followed at first by maniacal excitement of some hours' duration, later by profound comatose sleep lasting from one to three days. Upon the complete withdrawal of the drug this patient manifested the symptoms produced by complete abstinence in the confirmed morphine habit—yawning, anorexia, epigastric pains, vomiting, diarrhoea, absolute sleeplessness, extending over several days, heart-failure, collapse, colliquative sweating, and finally well-characterized delirium tremens. At the end of a week, under the influence of repeated small doses of codeine, sleep was secured, and within a month convalescence was complete. This person now continues free from addiction to any narcotic, in good health, and able to sleep fairly well, after the lapse of several months since the complete discontinuance of paraldehyde.

Cannabis indica is used largely in India and Egypt as a narcotic, but the only cases found in America addicted to this drug are those who have tried it in place of morphine. Occasionally a druggist will get qualms of conscience about selling morphine and will try to substitute this drug. The writer had one case of morphine-taking where the patient sought relief by drinking largely from

a bottle of this drug. Again, cocaine is growing to be a serious menace, owing to its use in dusting powders, nasal conditions, etc. Its effects are disastrous, but the case must be handled as are opium patients. Ether and chloroform are occasionally used, especially by hospital attendants, but their use can scarcely be called habits.

After all, the greater problem in this question is the prophylactic phase. The medical man has a great responsibility in the administration of drugs. There are many people who are predisposed to drug habits. They fall easily and quickly into the use of alcohol, opium, or chloral. We are fast waking to the fact that the patient medicine habit is chiefly alcoholic in character. Unless the medicine is a "repeater," i. e., the patient continues to buy it, the manufacturer loses money. He has found that alcohol makes "repeaters," and hence the habit.

There are two classes of patients on whom these drugs are especially indicated: chronic affections and painful acute illnesses. In such chronic cases as visceral or external cancer, advanced phthisis, tabes dorsalis, etc., the use of morphine, if it gives relief, is allowable. Again, in those cases of grave valvular or degenerative heart disease, where the patient is firmly addicted to a drug habit, it may be better to continue the drug, for the dangers of withdrawal may be too great. But in chronic cases, where there are chances for recovery by operation, the habit should be cured. Such cases are floating kidney, renal abscess, intractable localized neuralgias, etc. Nowadays surgical treatment is indicated in these cases, and the possibility of cure renders it desirable to stop any depressing habits.

In painful, acute diseases be most chary of using drugs that are likely to form habits. It is criminal to use a hypodermic needle habitually in such cases, for the patient often learns to demand it. Watch your patients carefully, know their weaknesses, and be on guard to prevent the development of any habit.

A National Department of Health is sought to be established by the American Association for the Advancement of Science, which would agitate in all legitimate ways toward the creation of a public sentiment to this end. A committee of one hundred was decided upon at its last meeting at Ithaca, to be appointed by Professor Irving Fisher of Yale University. This movement certainly has the support of the principal journals of medicine and surgery. In an important paper contributed to the *Jour. A. M. A.* on The Economic Advisability of Inaugurating a National Department of Health, Prof. J. Pease Norton suggests that the proposed department might consist of the following bureaus: Of infant hygiene; of education and schools; of sanitation; of pure food; of registration of physicians and druggists; of drugs, druggists and drug manufacturers; of registration of institutions of public and private relief, correction, detention and residence; of organic diseases; of quarantine; of health information; of immigration; of labor conditions; of research requiring statistics; of research requiring laboratories and equipment. The United States Department of Agriculture has expended during the last ten years \$50,000,000 in a fight against the diseases of plants and animals. It would seem that the time is now ripe for a war against the preventable diseases of mankind, which could best be waged by a national department of health at Washington.

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Trust men and they will be true to you; treat them greatly, and they will show themselves great, though they make an exception in your favor to all their rules of trade.—Emerson.

THE RECENT ENACTMENTS OF CONGRESS REGULATING DRUGS AND FOOD.

NOW that the smoke has cleared away from the battle-ground it is possible to judge of the recent legislation by Congress to control the all important subjects of food and medicines. This is made more possible by the publication on July 25 of a pamphlet by the Department of Agriculture giving the regulations built from the act of Congress which had been approved on June 30, previously. Later on—October 16 the commission appointed by the Secretaries of the Treasury, of Agriculture and of Commerce and Labor reached a unanimous agreement in the formulation of uniform rules and regulations for the enforcement of the food and drugs act. Evidently there has been subsequent revisions, for the Department of Agriculture has since issued several amendments, even as late as November 15.

Fortunately for the governmental purposes, there has been developed a highly efficient bureau of chemistry, which, under the charge of Dr. Wiley, has been doing good work for some time. For practical administration the bureau is divided into laboratories and divisions according to the questions to be studied. The aim of this bureau is to supply public wants, not private, and only such investigations are made as will result to the advantage of the public. Thus "The Division of Foods" has charge of the food inspection, and is ready to accept the increased demands of the new laws. It controls branch laboratories at various points in New York, San Francisco, Boston, Philadelphia, Chicago and New Orleans. The sugar laboratory is charged with the chemical study of sugars and other carbohydrates, while the dairy laboratory examines dairy products of every description and studies new methods for such exami-

nation. The drug laboratory, as its name implies, investigates the adulteration of drugs, even making analyses for the Post-office Department to decide on the dangerous or fraudulent nature of products sent through the mails. The contracts laboratory examines all materials submitted with bids for contracts, while there are many chemical laboratories, leather and paper, plant analysis and miscellaneous laboratories. Hence it can be seen the government had the groundwork on which to build an excellent structure.

Order No. 137, of the Bureau of Animal Industry, contains the explanations and regulations of the meat inspection. A perusal of its pages fails to show any loophole by which any derelict or dishonest firm could crawl out of its duties and obligations. The language used is clear, non-technical and convincing. It is generally well known, of course, that the Federal government can control only interstate or foreign commerce, and that these laws do not apply to farmers or retail butchers selling within their own State. This class of producers must be reached by State laws. Outside of this class, all meat and meat food products, after October 1, 1906, must be examined and labeled. The work of preparing for this inspection must be started by the proprietor of the establishment. He must apply in writing to the Secretary of Agriculture; it is not necessary for the inspectors to look up these places, they must take the initiative. This application must state all details, even to the number of animals slaughtered per day, and the proposed disposition of the products. Again, not only have inspectors access to these establishments day or night, at any time, but office room, including light and heat, must be provided for their exclusive use, rent free. These accommodations must be properly ventilated, conveniently located, and meet the approval of the inspector in charge. It is not generally known, but the regulations also provide that "under no circumstances shall an establishment be operated except under supervision of an employee of the Agricultural Department." Hence the manager of each establishment must inform the inspector in charge of the day and hour when work is started and stopped. It is made a felony to offer the inspector anything of value to influence the discharge of his duty.

In the matter of sanitation, the regulations are most minute, covering every detail of the business, even including that plans of new plants or plants to be remodeled should be submitted for approval to the Secretary of Agriculture. Again, the inspection is antemortem as well as postmortem, and the regulations include even the taking of temperature in suspected animals. The various diseases to which animals are exposed are all enumerated and described. So it is with trade labels; nothing deceptive is allowed, nor is counterfeiting of any marks, stamps, tags, labels permitted,

under heavy penalty. Weekly reports are required from the inspectors, and the Secretary of Agriculture or the Chief of the Bureau of Animal Industry is the final arbiter in all cases of dispute. From their decision there is no appeal.

Similar results are obtained by the legislation known by the short title "The Food and Drugs Act, June 30, 1906." The Secretary of Agriculture is here again in complete control, although two other departments of the government are interested—the Treasury and the Department of Commerce and Labor. This act includes not only drugs, but such products as confectionery and prepared foods. All labeling must be in English, not smaller than eight-point caps. There are a number of substances used in drugs and foods which must be shown on the label. These are alcohol or derivatives or preparations containing alcohol, morphine, its derivatives and preparations containing the alkaloid or its derivatives, opium similarly described, cocaine, heroin, eucaine, chloroform, cannabis indica, chloral and acetanilide.

These regulations may be altered or amended at any time without previous notice.

Certainly these two sets of laws seem most complete in their scope. May they show resulting increase in health and life and the pursuit of happiness, which is the birthright of every American citizen.

ABSENCE AS EVIDENCE OF DEATH.

THAT mere absence may be fallacious evidence of death is a statement which will be subscribed to by those of our readers who have in their tender years got full-throated over the story of Enoch Arden. We learn now, in a record of legal proceedings, of the return of a former citizen of Newark who has been absent from that city for eight years. This gentleman's will was admitted to probate a year ago, under a statute which provides that seven years' absence without being heard from shall be evidence of death. And, as the amount of property involved was over \$50,000, the case has attracted no little attention.

This New Jersey statute has its counterpart in nearly all of the United States. Louisiana is an exception, in that it derives its jurisprudence from the Roman or civil law—the rule here being that an absentee was always to be deemed to be living until his death was actually proved, or until one hundred years after the date of his birth.

Practically all our other States, however, follow the common law of England—the law based upon immemorial custom in that country, as explained and laid down by its courts of justice. This is done by us generally, even in the absence of State statutory enactments on the subject. There is, however, one essential

difference between English and American procedure. In the former country, while an absentee is presumed to be dead who has not been heard of during seven years, the law does not assume to fix the particular time within that period when his death actually occurred; whereas our courts generally presume that the absentee survived until the expiration of the seven years; and if it becomes necessary to determine the precise time of death, it is held, in the absence of proof, to have occurred at the end of that period.

In the concise language so admirably characteristic of legal enactments, it is held that "the time of the death as well as the fact of the death are presumptions, not of fact, but of law." The law decides these things; and if, in any given case, the time of the death as well as the actuality of the death are at variance with the legal presumption, why then so much the worse for these facts. They are "not material" to the presumptions of the law. We may here find some justification of the statement that "the law is an ass"; and this may be an amiable pleasantry to many, but not to such as have from time to time suffered substantially by reason of presumptions entertained by the courts. On the whole, the Louisiana plan would seem best suited to those having a tendency to sequester themselves, who have fortunes to bequeath; otherwise they might find that the condition in which poor old King Lear found himself has not greatly changed since his day. Besides, why should not heirs and legatees establish their own fortunes, just as the rest of us do—when we can?

THE DISSEMINATION OF THE TUBERCLE BACILLI BY INSECTS.

NOW that our suspicions are aroused, every bacterial disease is being studied, especially for its relation to insect infection. This is true especially of tuberculosis, although it is well established that the chief means of its dissemination is through the inhalation of dried tuberculous sputum. Carnet demonstrated this fact splendidly some years ago.

The idea that there are other methods of contamination will not down, however, and investigators are pressing every possibility into the searchlight. There seems no logical reason that insects cannot carry the bacilli of tuberculosis. Recently Weber, in an interesting article in the *New York Medical Journal*, published some interesting reports on this subject. Ravenel, in a previous work, has pointed out that tuberculous cows project small particles of sputa containing the bacilli during the act of coughing. Ravenel used a nose-bag, near the bottom of which he put a shelf of soft pine wood which caught the smallest particles, and from these he detected the tubercle bacilli in every tuberculous cow which he examined. Now Weber goes further

and studies the insects which are found in the greatest profusion around every stable.

Small forms known as the psocidæ, of the order of neuroptera, were especially examined. These little-known insects are found in the greatest profusion in barns and outhouses where animals are kept. The psocidæ are chewing insects, fancying farinaceous food; hence they live around troughs, granaries, feed-chests, and mangers. The wingless subdivision, the atropedæ, are especially under suspicion. They are famous in literature as the so-called "death watch," and have often been mistaken for lice, as in the case of the Pennsylvania Louse Story of 1903, when reports were sent abroad that a so-called plague was infecting the eastern part of that State. A tuberculous cow deposits sputum swarming with bacilli mixed with meal all over the woodwork of her stall. These insects at once pounce on this feed and fill their stomachs with saliva, sputum, and meal. They are easily crushed and the contents of their stomach may be conveyed to other animals. Weber found microscopically specimens harboring tubercle bacilli, after a search through three thousand specimens. He held a single page of a newspaper under the bag in a mow and with a few taps caught two thousand specimens of the various species. He injected this ingested material in which tubercle bacilli were found into the peritoneal cavity of guinea pigs and developed tuberculous lesions. Control experiments in which uninfected gastric contents were injected showed no tuberculosis.

These insects occur not only in barns, but in houses, on starched goods, in drawers, in bedclothes, upon walls and floors, and on all kinds of clothing. They are also seen on potatoes, onions, apples, and all sorts of fruit. Weber got one hundred and sixty specimens of the clothilla ocellona from a straw hat which he had worn for three days. He looks upon the common house psocid (*bacillus pedicularis*) as the most dangerous species, for it feeds in barns in nymph and adult life and swarms into the house in the fall. This insect is often noted over fruit that has been standing for a time, especially on apples, where it hides about the stem and eye of the fruit. This subject deserves more attention than it has as yet received. It deals with a form of insect life which has not been touched upon scarcely in pathological research.

INDUSTRIAL ACCIDENTS.

IT has been a standing jest for years that the only way to increase safety on railroad trains was to tie a director of the road on the cowcatcher. This suggestion was scarcely repeated in a recent editorial before the world was startled by the killing of a railroad president on one of his own trains. His death was tragic in the extreme, but not more so than the

loss of many other passengers was to their family and their world. It is a startling refutation of the safety of our American roads under any circumstances, for joking aside, certainly it would seem that railroad men would be especially on their guard when their own president was under their care. It was the old, old story—some one had blundered. Some one will continue to blunder until the business of railroading is reorganized. It is not in the province of a medical journal to say how this will be done, but it is a matter that is bitterly crying out for a speedy solution.

It has been the excuse of railroad apologists that the increase in accidents has been due largely to the increase in travel, but this is not the truth; for while one passenger was killed in 1895 for every three million carried, now one is killed for every one million four hundred thousand. It is still worse in injuries, for while one was hurt for every two hundred thousand carried in 1895, now one is hurt for every seventy thousand. As we must remember that this seventy thousand represents many duplicates—that is, riders repeating trips—the percentage grows uncomfortably large. The chances of fatal accident have increased sixty-one per cent. in ten years, while non-fatal accidents have more than doubled.

Taking the broader field of industrial accidents, the same condition is found to exist, although the data is hard to collect because only one state, Wisconsin, requires physicians to report every accident which confines a patient for a fortnight. Dr. Josiah Strong, in a recent issue of the *North American Review*, compares these losses with those of war, and he finds some startlingly picturesque results; thus civilization has grown more dangerous to life than the perils of savage beasts and savage men. Dr. Strong estimates that there are in the United States over five hundred thousand accidents a year, more than two great armies can inflict on each other in the same period. There are more casualties on our railroads alone in one year than were killed on both sides in the Boer war in three years. The total casualties yearly in all trades undoubtedly are fifty per cent. more than all the killed and wounded in the late war between Japan and Russia. Moreover, these soldiers were trained to kill, while the victims of this industrial warfare were producers who were struck down as a reward for serving the public and promoting civilization.

Fortunately this unhappy condition of affairs has attracted attention. In Europe there have been several expositions for accident prevention, and for the same purpose the American Institute of Social Service will hold in New York, early in the new year, an exposition of safety devices at the American Museum of Natural History. The movement is worthy of all encouragement, for it responds to a bitter crying need.

AGORAPHOBIA—A SIMIAN INHERITANCE.

WE have provided imposing names for many "phobias"; and the list is ever increasing.

So that a man who is afraid of everything he comes upon is mercifully dubbed by science, not a low-down coward, but one afflicted with pantophobia. We have in these columns commented upon claustrophobia—fear of confined spaces—citing as an example Hamerton, the great English essayist. The opposite of this strange affliction—agoraphobia, the fear of open spaces—has recently been explained in *The Lancet* in a manner to delight the thoroughgoing evolutionist.

Agoraphobia, it appears, is due to an instinct which existed in full force and had great biological value in our very remote ancestry. Our forbears were arboreal in their habits; wherein lay their salvation from extinction. Feeble in body, without either weapons or defensive armor or means of concealment, they were safe from the carnivora only by reason of the agility with which they could climb out of reach, and could leap from bough to bough and from tree to tree. Whosoever descended to the ground, where the greater carnivora pursue their prey, was in danger. Our primeval ancestors got about much less rapidly on open ground than among tree-tops—certainly less rapidly than their chief foes. Among the tree-tops they were comparatively secure; there no enemy could vie with them to overtake them. On the flat they had no chance against the spring of the panther or the speed and wind of the wolf; in the security of the forest boughs, however, they could grin and chatter, contemptuous of their enemies below. But the farther they ventured from the secure retreat the greater the peril they were in. So that our ancestors, in the arboreal stage of their existence, had a very strong instinctive aversion to any extended excursion from their places of security and rest. This state of mind certainly seems now to be reproduced under similar circumstances in agoraphobia. The craving of such a sufferer is to be near—not necessarily trees—but some tall, vertical protective structure; away from which he has just the feeling of dread, of impending danger or disaster, of something dreadful about to happen that a man would have who would be walking through a jungle infested by tigers. Sufferers from agoraphobia will get from one side of a court to the other by not only going around by the wall, and touching it all the way; but sometimes they will also squeeze themselves against the wall and clutch at its bare surface. Such patients simply cannot cross an open space; they cannot venture more than a step or two from vertical surfaces. In a colonnade they feel no uneasiness, open all around them though it be. Reason tells them their fear is groundless; but, as often happens in other circumstances of life, reason is powerless against instinct.

Osler's observation is very apropos. He has found that such patients are not so fearful of open spaces if they be accompanied, or if they carry with them some such weapon as a cane; there is here the natural feeling that the danger would be less in company or when a weapon is carried.

VENESECTION.

PROFESSOR BOUCHARD recently reported to the Paris Academy of Sciences the work of two of his youthful colleagues who found, upon bleeding a healthy animal, that the proportion of erythrocytes was increased; moreover, this enriched blood having been injected into another animal, that of the latter also showed more red corpuscles. Of the correctness of these findings we make no doubt. More than this, it is unquestionable that in suitable cases venesection is the best means to relieve an intoxication dependent upon the retention of poisonous materials in the circulation. Wood* declared that although this procedure is susceptible of abuse, there is none which can so frequently save life in cases where its exhibition is appropriate. We may judge of the benefits which would follow its intelligent and scientific use by the relief which follows the blood-letting occasionally compelled by nature—as after a nosebleed, or a mild hemorrhage in phthisis.

Venesection has been practiced from time immemorial. Galen (circa 200 A. D.) gave some very definite and scientific rules concerning it. The trouble has been with its indiscriminate practice, without regard to the pathology of conditions. There was a time, indeed, when copious bleedings were the first aid for nearly every conceivable ill; some of our oldest practitioners can tell us of this era. Not only the sick, but the well also, were bled freely at regular intervals, so that lancet marks on hands and feet were more common than are the scars of vaccination to-day. The climax was reached by Cullen and Gregory in England (1757), by Bouillaud in France, and by Rason in Italy; until Van Helmont complained that a "bloody Moloch presides in the chairs of medicine." To such butchery an equally unreasonable reaction was in the nature of things inevitable, so that blood-letting fell into disuse; and for many decades up to the present time has been done almost not at all. Its practice as a therapeutic measure should be resumed—but scientifically and in appropriate cases. We here properly recall the artist who, when asked how he got such wonderful colors upon his canvas, replied that he mixed his paints with brains.

Under what conditions, then, should we venesect:

*Therapeutics and Pharmacology, 1860.

Consider the individual, the amount to be removed, and the frequency with which the blood is to be let; do not bleed in the dog days (in Italy), and in moist, warm weather; take account of the extremes of life—youth and old age (Galen). Sydenham would bleed athletes and those of a "sanguine temperament;" to-day he would no doubt bleed many a plethoric policeman stricken with pneumonia. In gout he would not bleed. Bleeding seems to be ineffective against inflammations as such. It should be done early in the disease, when such symptoms as pain, dyspnoea and oedema are very marked.

Specifically, bleeding is appropriate: For cardiac dilatation from whatever cause, to relieve an embarrassed circulation, such as is indicated by orthopnoea and cyanosis, Osler would extract from 20 to 30 ounces; "timely venesection may save life." For sudden engorgement and distention of the vessels "that carry black blood of the systemic veins, of the pulmonary artery and especially of the right chamber. As the tension of the stretched and almost paralyzed right heart is lessened the hollow vessel can again contract; the clogged lung is set free, the functions of the oppressed brain are eased and circulatory balance is restored" (Sir Thomas Watson, 1871). For such arterio-sclerosis as is evidenced by dyspnoea, slight humidity, high tension and cardiac insufficiency. For aneurism. For pulmonary congestion and oedema, especially early in pneumonia. For pleurisy (if more such cases were blood-let, they would not so often have empyema for a sequel). For emphysema, when the veins are engorged and there is humidity and dyspnoea. In some disturbances of the cerebral circulation, such as threatened or already occurring apoplexy, with high tension. But Cushing very well observes that a far advanced apoplexy, with the patient moribund, had best receive no very radical treatment. There is, in such cases, an enormous clot, the pressure effects of which upon the brain tissue would, even if recovery were conceivable, be most disastrous and unhappy. For hepatic congestions. For eclampsia and uræmic conditions generally. Meigs would not consider the abstraction of a dozen ounces for puerperal convulsions; in order to relieve the blood pressure upon the brain and the kidneys, he would abstract from 30 to 60 ounces. Dun would venesect for uræmic coma not only to relieve mechanical obstruction but also to throw out toxins with the blood, "while at the same time an osmotic flow takes place from the tissues to the blood current, preventing an accumulation of toxins in them." Robin finds bleeding to be followed by polyuria with increased excretion of solids; more air, moreover, enters the lungs and more oxygen is respired into the tissues. In infections generally Raymond finds bleeding the best method for mechanical disintoxication. In some cases

of suppressed menses, and in migraines, venesection is appropriate. Weir Mitchell was sunstruck when a young practitioner; and Osler decides that, having been intensely asphyxiated, venesection saved his most valuable life. In another column we detail the technique of this minor operation.

CHILD LABOR.

A LAW regulating the labor of children, and partly also that of women, has recently gone into operation in New York State. For this step in the direction of common, everyday Christianity, several charitable societies, especially that one which exists only for this purpose, should be warmly praised and thanked by the community. According to its most important provisions no child under sixteen may work in any factory in the State before 6 a.m., or after 11 at night; nor may a child under this age be employed after 7 p.m., in this city in business places, hotel, telegraph offices, for the transmission of messages, and the like. Nor may any child under sixteen, nor any women, be allowed to work in any mine or quarry. Provision is made for inspection and for the enforcement of the terms of the law; and the issuing of licenses regarding the manufacture of clothing in tenements is made a much more stringent matter than formerly. Like the Tenement House Laws relating to the metropolis, which such splendid citizens as Mr. de Forest, Mr. Richard W. Gilder and their co-workers, had enacted, this child labor law, in reality an old law amended and reinforced, has been worked out in detail by practical and experienced philanthropists. Gelatinous emotion has had little to do with the matter. Nevertheless, as with all human instruments, time may show the necessity for some further changes. Surely every one is shocked (and to many of us the statement is quite new) that children and women have been employed in our mines and quarries; and we all of us, now that this information has been assimilated, will surely see to it that no such barbarity comes to pass again. In some instances, however, inhibition of the labor of children under suitable circumstances may be a great hardship to a family, as where the elders are incapacitated through illness or accident or other unavoidable causes. But such instances as these are exceptional, and as our lay namesake observes, the hardship thus incurred is usually of a sort that can be relieved by judicious use of the resources of charity as now organized in most places, and especially well organized in New York City. For our part, we believe that instances where charity may appropriately intervene should be rare. Charity appears to us oftentimes much too eager to lend a hand. For instance, there are the day nurseries which have been established in

the metropolis, in which mothers may leave their infants and children while they go out to work. Here is a touching and most appealing charity which is beyond criticism in the case of destitute widows recently bereft of their husbands. But now these charities exist in great profusion, fostering a distinctly false condition of life. They have become an enormous factor in increasing paternal drunkenness and desertion. So that the number of desertions by fathers has been found to increase in direct ratio with the care provided for deserted children by charitable organizations. A report of the New York State Charities Aid Association gives the number of such desertions in New York City alone as 60,000.

"FAITH CURERS" AND SICK CHILDREN.

A DISGRACEFUL controversy between husband and wife was recently ventilated in the courts, a separation resulting. The aspect of this case which interests us here is that the little son of the contestants, over whose possession they were wrangling, had been very ill. The father wished that rational medical treatment be tendered it; the mother insisted that only "Christian Science" methods be employed. We hold that a child under such circumstances is necessarily a victim of most insensate cruelty.

On the whole we rather deprecate legal measures restricting the practice of these charlatans when adults are concerned. If a citizen, concerning whom no certificate of lunacy has been prepared, believes that his cancer, or his locomotor ataxia can be dissipated by the mere exercise of thought or suggestion or hypnotism or "mind cure," he appears to us not to be entitled to the consideration of the rational portion of the community. Free will is his, and so his fate should lie in his own hands.

But the matter is entirely different with children. They are helpless to make a choice of a physician, and it is a brutal thing indeed, and one well within legal jurisdiction to prevent, when a child who is grievously ill and like to die, is subject to imbecile incantations instead of receiving, as it is entitled to, the ministrations of a skilful and humane practitioner. The *Daily Times* very well observes that the "scientists" do not "murder their children, because murder implies intention, but beyond any question they kill them with considerable frequency."

In another kind of cases the hand of the law should fall very heavily upon these pseudo-practitioners, namely, in infectious diseases. Prison doors should open wide for those who, with criminal stupidity, ignore the simplest precepts of sanitary science, and by their carelessness wantonly subject their communities to epidemics.

BIBLIOGRAPHICAL

Surgery: Its Principles and Practice. In five volumes. By 66 eminent surgeons. Edited by W. W. Keen, M.D., LL.D., Hon. F.R.C.S., Eng. and Edin., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Vol. I: octavo of 983 pages, with 261 text-illustrations and 17 colored plates. Per volume: Cloth, \$7.00, net; half morocco, \$8.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

This entirely new work, edited by Dr. W. W. Keen, will consist of five large octavo volumes covering the entire field of surgery in a thorough and complete manner. Owing to the editor's eminence in the profession it has been possible to secure as authors of the various articles, men whose names are specially associated with the subjects upon which they have written—renowned specialists with international reputations, accepted as authorities throughout the surgical world. Every chapter represents a complete and original monograph by an authority of recognized eminence, the entire work being written by the leaders of modern surgery. A special feature consists of the illustrations, all of which are new and beautiful. There are about 1,500 of these text-cuts and some 50 colored plates.

The first volume has been received and one is expected to follow every three months, until the five appear.

The editor says that the office which he reluctantly assumed has brought him into intimate and continual contact with some of the brightest, most ardent, and earnest surgical scholars and experts of Europe and America, which is all the endorsement that could possibly be asked for by any surgeon.

The aim has been to give the latest well established knowledge, so that the text may be thoroughly up-to-date, avoiding passing surgical novelties.

The splendid narrative or historical sketch is beautifully written by Dr. James G. Mumford, of Boston, and the reader will here find the main characteristics of the epoch-making heroes of this branch of the profession almost in a nutshell. The practical part of this volume begins with "Surgical Physiology," and ends with "Wounds and Contusions," including Surgical Pathology, Infections and Tumors.

The book should be seen to be appreciated.

The publishers are also to be congratulated for their part in making such a work possible.

Abdominal Operations. By B. G. A. Moynihan, M.S. (London), F.R.C.S., Senior Assistant Surgeon at Leeds General Infirmary, England. Second revised edition, greatly enlarged. Octavo; 815 pages, with 305 original illustrations. Cloth, \$7.00, net; half morocco, \$8.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

It is only a few months since the first edition of this work appeared, and the demand for a second has made it possible to revise and add to the text and illustrations thus early. The author has a right to feel proud of the reception his effort has received, and he has put forth his utmost endeavor to render the book of service to those for whom it was written.

The text includes only those operations which are common to the two sexes.

The operations described are those in general use, and nearly all are practiced by the author himself.

The book is highly commended by eminent surgeons.

Prevalent Diseases of the Eye. By Samuel Theobald, M.D., Clinical Professor of Ophthalmology and Otology, Johns Hopkins University. Octavo; 551 pages, with 219 text-illustrations, and 10 colored plates. Cloth, \$4.50, net; half morocco, \$5.50, net. Philadelphia and London: W. B. Saunders Company, 1906.

This is a reference hand-book especially adapted to the requirements of the general practitioner and the medical student, and it really is what it claims to be. Such works generally are only suited to the specialist.

The author describes fully such aids to diagnosis as can but prove helpful, and such therapeutic measures, operative and non-operative, as the general practitioner may employ with advantage.

The work is timely, and just what every physician needs.

Diet in Health and Disease. By Julius Friedenwald, M.D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Second revised edition. Octavo; 728 pages. Cloth, \$4.00, net; half morocco, \$5.00 net. Philadelphia and London: W. B. Saunders Company, 1906.

This book, prepared to meet the needs of the general practitioner, hospital interne and medical student, as well as for a reference hand-book for training-schools, has proved a great success. Its aim is entirely practical, as it gives the different kinds of foods, their composition and uses, together with the principles of diet both in health and disease.

The text has been revised, rewritten to some extent, and enlarged to cover present needs. There is also added a revised list of recipes and a new set of diet lists for ready reference.

Our readers cannot fail to be interested in its contents.

A Text-Book on the Practice of Gynecology. For Practitioners and Students. By W. Easterly Ashton, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Third edition, thoroughly revised. Octavo; 1096 pages, with 1057 original line drawings. Cloth, \$6.50, net; half morocco, \$7.50 net. Philadelphia and London: W. B. Saunders Company, 1906.

It must be a satisfaction to the author that a third edition of his work should be called for so soon, and it is positive testimony as to the value of the publication. The changes and additions are from the personal experience of the author, and not mere compilations, hence are of greater value in practical work.

It is fully illustrated, many of the figures having been changed or removed, while there are 82 new ones, making in all 1057.

The method of collecting curette findings has been simplified and made more effective, and there are many other changes and additions which add greatly to the usefulness of the work.

The revision has brought the subject-matter and the illustrations fully up-to-date, and the most advanced and sound teaching has been clearly described.

The book is all that can be desired for its purpose.

The Technic of Operations Upon the Intestines and Stomach. By Alfred H. Gould, M.D., of Boston,

Mass. Octavo volume; containing 190 beautiful original illustrations, some of them in colors. Cloth, \$5.00, net; half morocco, \$6.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

This volume adds another to our list of beautiful works of surgical art. It is the result of three years of research, and no pretence is made of giving all the methods in vogue. The selection of operations is intended to cover the requirements of gastro-intestinal surgery. There are 190 illustrations, mostly original, several of them in colors, and all are superb. It will be found of great interest by the worker in abdominal surgery.

A Text-Book of Obstetrics. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania. Fifth revised edition. Octavo; 915 pages, with 753 illustrations, 39 of them in colors. Cloth, \$5.00, net; half morocco, \$6.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

This standard work has been carefully revised, particular attention being paid to the recent advances regarding puerperal infection and gestational toxemia, confining the text to those facts that seem at present clearly established.

The author has kept in mind the needs of the medical student and the general practitioner of medicine, with a view to his responsibility in obstetrical procedure.

The enormous experience of the author in teaching and in clinical service makes his work of the greatest practical use to those for whom it is intended.

It is a fully illustrated, modern text-book of the first rank.

Atlas and Text-Book of Human Anatomy. Volume I. By Professor J. Sobotta, of Wurzburg. Edited, with additions, by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy at the University of Michigan, Ann Arbor. Quarto volume of 258 pages, containing 320 illustrations, mostly all in colors. Cloth, \$6.00, net; half morocco, \$7.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

The editor of this superb work of art truly says, "there can be no question as to the value of a good Atlas of Anatomy as an aid to the acquisition and retention of correct ideas regarding the structure of the human body and the relations of its various parts."

The student and the practitioner, both, require such a work, and must have it if they would succeed. This Atlas, of convenient size, with its wealth of accurate illustrations and its thorough but concise descriptive text, will be found to fill this want at a reasonable cost.

By uniting the text and atlas in a common volume, much repetition has been avoided.

The nomenclature employed is essentially that proposed by the Basel Committee, in the interest of universal terminology, a condition greatly to be desired.

We heartily commend the work to our readers.

The American Illustrated Dictionary. All the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry and kindred branches; with over 100 new tables. By W. A. Newman Dorland, M.D. Fourth revised edition. Octavo; 836 pages, with 293 illustrations, 119 of them in colors. Flexible morocco, \$4.50, net; thumb indexed, \$5.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

The author of this work has produced in a volume of convenient size an up-to-date medical dictionary, suffi-

ciently full for the various requirements of all classes of medical men. It is not an unwieldy lexicon, neither is it an abridged students' dictionary, but it has the good qualities of both.

The definitions are clear, concise and sufficiently complete. There is also a large amount of information in tabular form, and many specially prepared tables.

The arrangement is adapted for consultation, and the illustrations of practical value.

The book is of attractive appearance and of suitable size for ready reference.

In the present edition over 2,000 new words have been defined, and numerous improvements made in the text and in the tables. Six new colored plates have also been added.

Every practitioner needs at least one medical dictionary of recent origin, and this publication cannot fail to satisfy any who may require such services.

Obstetrics for Nurses. By Joseph B. DeLee, M.D., Professor of Obstetrics in the Northwestern University Medical School, Chicago. Second revised edition. 12mo; 510 pages, fully illustrated. Cloth, \$2.50, net. Philadelphia and London: W. B. Saunders Company, 1906.

There are really two subjects considered in this volume: Obstetrics for nurses and the actual obstetric nursing, and the author has sought to combine them so that the relations of one to the other might be natural and mutually helpful in presenting his subject. The usefulness of the book to students and young practitioners, as well as to nurses, has been realized, and in the present edition the advances in obstetrics have been appropriately noted. The illustrations are admirable, nearly all original, and 40 new ones with 47 pages of text have been added.

The book is both practical and most useful for its purpose, and thoroughly commended.

Photocopy (Skiascopy or Retinoscopy). By Mark D. Stevenson, M.D., Ophthalmic Surgeon to the Akron City Hospital; Oculist to the Children's Home, Akron, Ohio. Octavo; 126 pages, illustrated. Cloth, \$1.25, net. Philadelphia and London: W. B. Saunders Company, 1906.

This little volume not only attempts to explain the practical application of Photocopy, but also to elucidate the reasons of the various phenomena observed. The text is clearly written and especially adapted to the beginner.

Saunders' Pocket Medical Formulary. By William M. Powell, M.D., author of "Essentials of Diseases of Children"; Member of the Philadelphia Pathologic Society. Containing 1,831 formulas from the best known authorities. With an appendix containing Posologic Tables, Formulas and Doses for Hypodermic Medication, Poisons and their Antidotes, Diameters of the Female Pelvis and Fetal Head, Obstetric Table, Diet-lists, Materials and Drugs used in Antiseptic Surgery, Treatment of Asphyxia from Drowning, Surgical Remembrancer, Tables of Incompatibles, Eruptive Fevers, etc., etc. Eighth edition, adapted to the new (1905) Pharmacopœia. In flexible morocco with side index, wallet and flap. Price, \$1.75, net. Philadelphia and London: W. B. Saunders Company, 1906.

Many obsolete formulæ have been omitted from this edition, by careful sifting, and more than 460 new ones

have been added, culled from the literature of leading authors.

Every effort has been made to make the work thoroughly practical and representative of prevailing therapeutic methods. The book has become standard.

GenitoUrinary Diseases and Syphilis. By Henry H. Morton, M.D., Clinical Professor of Genito-Urinary Diseases in the Long Island College Hospital; Genito-Urinary Surgeon to the Long Island and Kings County Hospitals, and the Polhemus Memorial Clinic. Illustrated with 158 half-tone and photo-engravings and 7 full-page colored plates. Second edition, revised and enlarged. Royal octavo; 500 pages. Price, \$4.00. Philadelphia: F. A. Davis Company.

The progress in this department of medicine has been so rapid of late that it becomes necessary to revise and even to rewrite works of this class at frequent intervals, to keep them abreast of the times. This is what has been done in the present edition of this useful book.

Within a short time the treatment of acute and chronic gonorrhœa and many other affections have been removed from mere empiricism and placed upon a scientific and rational basis. The affections of the prostate have been especially studied, as well as the surgical diseases of the kidney in regard to both diagnosis and treatment.

The author has written his text in a concise and intelligent manner for easy comprehension, and shows the present status of genito-urinary diseases and syphilis for practical purposes.

The work should be placed in the front rank of hand-books for students and general practitioners.

Text-Book on Diseases of the Heart. By Graham Steel, M.D., F.R.C.P., Lecturer on Diseases of the Heart in the University of Manchester; Senior Physician to the Manchester Royal Infirmary. With an appendix on The Volume of Blood in Relation to Heart Disease. By J. Lorrain Smith, M.A., M.D., Professor of Pathology in the University of Manchester. 12mo; 389 pages. Price, \$2.00. Philadelphia: P. Blakiston's Son & Co., 1906.

The author of this book has given an account of the clinical aspect of heart disease—as drawn from life—together with a description of the principles of the treatment of the diseases. The facts deduced do not go beyond actual experience at the bedside, and excludes all so-called "authority."

The work marks a distinct advance in the study of affections and treatment of this organ, and is worthy the attention of all clinicians.

The study is made along independent lines, regardless of routine methods and free from obsolete traditions.

A Compend of Genito-Urinary Diseases and Syphilis, Including Their Surgery and Treatment. By Charles S. Hirsch, M.D., Assistant in the Genito-Urinary Surgical Department, Jefferson Medical College Hospital. Illustrated. 12mo; 351 pages. Price, \$1.00. Philadelphia: P. Blakiston's Son & Co., 1906.

The author has well epitomized his subject for the use of the student and the practitioner. The text is compact, tersely described, and is confined to essentials. The student cannot fail to find it of service.

Stenhouse and Ferguson's Epitome of Pathology. By John Stenhouse, M.D., of the University of Toronto, and John Ferguson, M.D., Toronto, Canada. Edited by Victor C. Pedersen, M.D. 12mo; 285 pages,

amply illustrated. Cloth, \$1.00, net. Philadelphia and New York: Lea Brothers & Co., 1906. (Lea's Series of Medical Epitomes.)

The volume on Pathology brings near to completion the Medical Epitome Series, which is to comprise twenty-three manuals authoritatively covering the whole field of medical education. Twenty of these are now ready, leaving only the volumes on Nose and Throat, Gynecology, and Hygiene to be published shortly. Drs. Stenhouse and Ferguson devote the first half of their work to General Pathology, after which the Special Pathology of the various organs and systems is considered. This arrangement conforms to the modern method of handling the subject, so that this excellent epitomization will serve not only the student in acquiring a well assorted knowledge, but also the practitioner who desires to post up on the leading points. Mastery of the information so easily presented in this compact volume will qualify its readers on the essentials of the subject and facilitate the work of those who desire to pursue it further in the larger treatises.

FOOTBALL MORTALITY.

According to statistics of the *Chicago Tribune*, football has been responsible for the following casualties during the last two seasons:

	1905.		1906.	
	Killed.	Inj.	Killed.	Inj.
High schools	11	47	7	25
Colleges, etc.	7	112	4	79
Total	18	159	11	104

The improvement is ascribed to the new regulations, which are also of advantage in allowing more skilful playing, instead of limiting the science of the game to obstructive tactics.

Total figures always give an exaggerated impression. Eleven deaths in a year is a terrible cost for excitement and diversion, even for the health-giving qualities of physical exercise, and yet every industry and legitimate pleasure has its blood money. Statistics of the football playing population are obviously not obtainable. If we estimate that the player is exposed to danger for a tenth of the year, the football mortality is equivalent to 80 as a total. The average mortality rate for boys of high school age (15-19) is at present almost exactly 1:200. In other words, the football mortality is equal to the total average mortality of a similar population of 16,000. Similarly calculated, the mortality for colleges is about that of a population of 5,500 (9,500 for 1905), the mortality rate from all causes for the ages 20-24 being 7.5:1000. We know from statistics that the college population is about 50,000 men, but, for such statistics as these, it would be fair to include professional and other schools, which would double this number. In other words, the football mortality is about 1-20 of the total. Certainly, no such proportion of the students are on teams, or even play to any extent.

Is the game worth the shot?

Another young life blighted, states the *Sun*. A Chicago man who had smoked and chewed for eighty-seven years has just been cut off in his flower. "Why will men put an enemy into their mouths to steal away their lives?"

CORRESPONDENCE

THE BASIS OF HEALTH.

To the Editor of THE MEDICAL TIMES:

A study of the history of medicine, if undertaken along certain lines, would produce some strange statistics. This is supposed to be a highly civilized and scientific age, and the practices of the ancients, such as bleeding and Helleborism, are viewed almost with horror. Yet, although vast changes have been brought about in the Science of Therapeutics, some of the ancient practices still survive, notably mercurialization.

We speak of the study of disease and the methods pursued for their relief as the *science* of medicine. What claim has modern medicine to the term "scientific?" Upon what recognized law or laws is the modern practice of medicine based? Except in the field of hygiene and dietetics, modern medicine is empirical! Empiricism means "Pursuit of knowledge by observation and experiment," and in that definition we have an explanation of the "shifting scenery" of drug therapy. Samuel Hahnemann said: "The first and sole duty of the physician is to restore health to the sick. This is the true art of healing." If modern medicine is empirical then, according to the above statement, its object is the pursuit of knowledge, possibly with the expectation that each patient treated will add to our knowledge, and so be of benefit in the next case. It can easily be seen that this method constitutes a continuous performance as long as it remains empirical.

If the empirical method, then, is faulty, how can we replace it; upon what laws can we base the practice of medicine in order to render it truly scientific, and to most quickly and surely "restore health to the sick"?

The first proposition is a negative one. Do nothing which will in any way interfere with normal physiological processes. Nauseous doses of any kind are objectionable, and the nausea is Nature's warning against them. Drugs which suppress are unnatural, and we may feel sure that by suppressing any symptom we are depriving Nature of a natural outlet. Suppression is the crime of modern medicine.

The second proposition should inform us what we can do. Physiology supplies the answer. The study of the physiological ingredients of the human body made possible the perfected diet tables. The study of physiological processes will give us a basis for natural and scientific therapeutics. Just as all substances necessary for the maintenance of life and health may be obtained in food stuffs; so may all, or nearly all, necessary medicines be similarly supplied. It seems evident that had Nature intended man to absorb poisons (so-called medicines) into his system, she would have supplied them in the form of food stuffs, and not given him, to start with, a natural antipathy to so many of the much-vaunted "remedies." The very fact that they do not so exist seems to show that they are abnormal and wrong.

How many physicians of to-day who habitually use such drugs as veratrum, for example, to lower the pulse rate, know what conditions physiologically affect the circulation, and how they affect it? Yet it is all to be found if we but look for it. Dozens of such examples might be given, but the only idea here is to raise the question: "Do you know, or do you try to find out, the physiology of the various conditions which you meet

in daily practice?" Not every doctor can say "Yes"; and yet, cannot any intelligent individual see the untold benefit to be derived from such knowledge? It is so easy to take down the "headache bottle," the "rheumatism bottle," or the "constipation bottle" and prescribe a few pills, that the simple and natural means at our command for the relief of these conditions are apt to be overlooked.

The secret of health is: The maintenance of proper elimination and assimilation by the aid of properly chosen food, fresh air, fresh water, and sunlight. Plutarch said: "If you feel sick, do not use medicine at once, but rather fast for a day, and never forget the body by devoting too much attention to the mind." It is good advice.

The so-called "nature cures" depend for their success almost entirely upon the establishment of natural ways of living in place of unnatural; of simplicity instead of luxury. In the rush and high mental tension of our present civilization, arising from the struggle for gold and power, the body is neglected. Quick lunches, pre-digested foods, and foods which are not foods at all, together with constant mental excitation, unite to undermine the strength and health of the physical body. Among our forefathers, the pioneers of this country, disease was practically unknown. They lived a free, open-air life; their food was necessarily simple, and to put it crudely, they were not civilized enough to be sick. In our cities to-day rich foods, poor air, and electric lights are the rule, and any one attempting to live the "simple life" discovers that *he* is the odd one—finds himself labeled "crank" and looked upon even with suspicion. This is why it is so difficult to treat diseases successfully. People want some quick-acting remedy, forgetting or not knowing that, after all is said and done, it is Nature who cures, and that so long as her laws are violated drugs can avail but little.

If the question were asked: "How may the average individual maintain a condition of health?" answers might be numerous, but any exact or definite directions, with their explanations, would be the exception. It seems strange that in an age of such great intellectual achievements the average individual depends so little upon his own powers of reason and observation when it comes to a question concerning the condition of his own body. The tendency of the general public is to run to their physician or to the corner drug store for every ailment, when the application of a little common sense would serve as well and often better. A large percentage of the patients coming to the general practitioner are suffering with self-limited or trivial complaints. A large proportion of these would quickly right themselves if the patient simply obeyed the natural laws of health, reasoning out for himself their application to his own condition.

It is not intended to belittle the practitioner of medicine; far from it. I am fully aware that it is not safe to leave the distinction between trivial and serious complaints to the patient. There is, however, a point to be made. The tendency upon the part of the physician to educate his patients is not marked. The more general custom is to give a prescription and a little advice concerning the special condition under consideration, and to let it go at that. But in the case of regular patients who are seen from time to time, it is possible to make each visit an opportunity for impart-

ing advice, not only concerning present conditions, but general instruction about many different natural laws, together with simple explanations. The watchword in the fight being made against the Great White Plague is: "Educate the public!" It seems very unbusiness-like, to say the least, to delay the education of the public in the prevention of disease until that disease has had time to become an actual menace. We do not know what plagues may arise in the future, but we do know that prevention is better than cure, and it is none too soon to begin to teach prevention.

In view of the foregoing, it is easy to see why Nature cures are coming so much into vogue. People are tired of being drugged, and as the average patients of to-day have advanced a long way intellectually, they are beginning to use their intelligence, and to reason about their own physical conditions, and reason is the deadly foe of empirical medicine. Having failed to obtain relief from the drugs prescribed by their well-meaning medical advisors they are flocking to the health sanitariums, where the enforced simple living, fresh air and sunshine do more to bring relief than all the drugs in the Pharmacopœia. It behooves us doctors to note most carefully the signs of the times, before our patients become too wise for us. Instead of dropping in behind, as we shall have to do, if the people discover the true road to health, let us be the pioneers, let us study and learn from Nature, and reap, in the health and happiness of those about us, the harvest of a "well-spent life."

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THE GIRL WHO TRAVELS ALONE.*

In the *Cosmopolitan* of December, 1906, Eleanor Gates begins a series of articles with the above title, dealing largely with the insults to which decent women are subjected when unescorted. She describes at some length the species of male human beings—we can scarcely call them men—who annoy women; finding physical cowardice the only attribute in common; recounts various experiences to illustrate the text, especially with reference to the suspicion and indifference with which decent men and the representatives of the law are inclined to regard women receiving such insults; states that such occurrences are directly proportionate to the concentration of population, hence of special frequency in the metropolis; and negatives the hypothesis that the insulting of women by men is due, directly or indirectly, to the initiative of women themselves.

In reading her very interesting article, any one who has made a study of the psychology of sex readily distinguishes two quite different, though often coincident, factors: 1. Mere mental degeneracy, which takes pleasure in offering injury to the innocent or in indecency as such. 2. The desire to make transsexual acquaintance, of greater or less degree of impropriety, without previous acquaintance.

For instance, the author states that foul language addressed to women is especially frequent in the mouths of teamsters, not especially infrequent in the mouths of small boys, that elderly women are not spared, and she mentions numerous instances in which no attempt at following up the acquaintance is made or in which the

* From the standpoint of the man.

persecution is persisted in, after it has become apparent that the woman would not reciprocate an attempt at acquaintance. In such instances, it is plain that the sole pleasure in the insult is the fact that it transgresses plain rules of decency. A man engaged with his team naturally cannot expect that a well-dressed woman will join him on the seat, and, in the other instances mentioned, of this general category, it is clear that we have to deal with a phase of abnormality entirely distinct from that manifested by the ordinary masher, and, it seems to us, of a much lower order. Such perversion, followed out in one line, brings us to the individual who finds delight in wanton cruelty to children and the lower animals, and, followed out along distinctly sexual lines, brings us to the "ripper" as distinguished from the ordinary murderer, or the fetish-seeker as distinguished from the thief or robber.

Just where criminal responsibility ends and actual insane irresponsibility begins in such scales, it is difficult to decide. Practically, any such manifestation calls for confinement of the offender, in the interests of society, and it makes little difference whether such confinement is regarded as a punishment or as a necessary restraint of an unfortunately abnormal individual.

The second phase of the subject is the problem of the masher, whom we find in various guises in all lands and in all times. Solomon's warning against the "strange woman" is usually taken to refer to the harlot in an exclusive sense, but it seems questionable whether he did not have in mind the more general social problem of illegitimate acquaintance and that the word *strange* is used in a literal sense. The vice is certainly as old as Homer, for Nausicaa, in rescuing Ulysses, bids him drop behind when they near the city, lest the people insinuate that she has "picked up" a stranger—a peculiarly modern expression.

It seems to us that the author has rather missed the force of her perfectly correct explanation of the fact that insulting overtures of acquaintance (she does not use the vulgar but conveniently brief term, "mashing," etc.) increase in frequency according to density of population. For instance, she emphasizes the rough but gallant treatment of women in the wild West, and states that although the making of clandestine acquaintances in small rural communities is practically unknown, countrymen visiting the city are frequently arrested for making overtures to women. It seems to us that there is no essential difference. The best of men are attracted to truly feminine women, and, the worst masher, unless an arrant fool, does not expect to make an improper acquaintance, at least at the beginning, with a woman who is respectable. A woman, accosted in a courteous, though unconventional way, by a strange man in the mining camp or in a small village, will usually respond without thought of insult, and will thereby, and by her obvious purity, at once place the acquaintance, such as it is, on its proper footing. The same intrusion, in a city, would obviously be an insult to a decent woman, and the woman who would respond to it, however good her intentions, would, thereby, invite further insult. Yet, in many instances, the "masher," especially the awkward one, is simply lonesome and yearns for woman's society, without ulterior motives. We can scarcely agree with the author that a woman who accepts a seat in a street car, or other courtesy of similar nature from a strange man, renders herself lia-

ble to intrusion by thanking him.

The subject of acquaintance without formal introduction is a very complicated one, in which it is difficult to draw hard and fast lines. Most of our intimate friendships begin without an introduction, and, indeed, mere compliance with the verbal formula of presentation does not necessarily launch a respectable acquaintance. It is a matter of common sense that travelers liable to be thrown together for a considerable time on ships, at hotels, or on long distance trains, should dispense with the formality of introductions. It is obvious that one cannot ask in advance the exact mileage of a fellow traveler, or the period of registration of a fellow guest. Generally speaking, men and women of good breeding do not usually desire or feel at liberty to make an acquaintance with a stranger met casually, and yet no line of demarcation exists according as a boat sails in salt or fresh water, or as a train is labeled "through," or "local," and, in general, good sense, good morals and good intentions are reasonably safe guides. It is a pity that a decent man should feel it necessary to hesitate about doing a woman a service in any place or at any time, because his motives might be questioned, and yet such is the case, and the well-meant offer of protection against a sudden rain or other courtesy, often meets with a rebuff and is often withheld, apparently selfishly, from women who would accept it in the proper spirit.

We differ very decidedly with the author's belief that mashers are not encouraged by women themselves, although granting that it is difficult for a decent woman to conceive otherwise. No allusion is made to street-walkers, who are a ubiquitous pest in nearly every city, in the down-town districts, to any man of fairly good appearance not obviously busy. They are simply plying a trade—as pitiable as it is degraded—and must be regarded in the same light, in this particular, as beggars, pedlars, and other human nuisances.

Accosting of women, even without frank indecency, is a punishable offense in almost every city of the civilized world. It is perfectly true, as the author points out, that such offenders are protected by the reluctance of good women to prosecute them, but it is self-evident that only the most unsophisticated could mistake a respectable woman for a street-walker, except in the rarest instances, and equally self-evident that the practice would stop if there were not some prospect of success. Unless men received encouragement from so-called and self-considered respectable women, the masher would be as much of an absurdity as a man who made a practice of inquiring for stationery at hardware stores. Disagreeable as it is to admit the fact, the masher accosts strange women who resent his intrusion because a very considerable, though, of course, small percentage of women outwardly respectable in appearance, and, indeed, of good morals, so far as gross infractions of decency are concerned, accept or even invite his advances.

For example, two young men of good character (one personally known to the writer), actuated largely by motives of sociologic curiosity, though not averse to a lark, deliberately went to a section of the city occupied by a respectable working class, to see how many girls would respond to overtures of strangers. They met with many rebuffs, some in a very complaisant spirit, and, on the other hand, with not a few direct overtures.

Altogether, they "caught on" to twenty-eight young women in an hour and a half, escorting each pair just long enough to be able to say that an acquaintance had been made. Not one of the girls acted or spoke in an indecent way, or showed any indication of being a professional street-walker. It is unnecessary to follow out the clinical plan adopted by the author of the articles under discussion. Suffice it to say that every man of anything like attractive appearance, however disinclined to clandestine acquaintance, frequently receives overtures from women on the street, in restaurants, public conveyances, etc. Men who make no secret of seeking such acquaintances are unanimous in the opinion that the hunting is easy on account of the abundance of game, in most cities and towns. To a surprising extent, women willing to make such acquaintances are merely silly, and by no means immoral. Curiously enough, too, women who would not think of making or accepting advances in their own habitat, will do so at summer resorts, in strange cities, or under the license of conventions, expositions, etc. The writer has a patient who is a shrewd business woman, a model mother, and at heart perfectly modest and good, who speaks most frankly of the courtesies shown her by strange men on trains, at hotels, etc., and of the pleasant acquaintances made in this way. Such women are by no means rare and it is perfectly obvious that they are the direct cause of "insults" offered to women traveling alone, and of which the author complains. In many instances probably no insult is intended, but merely a camaraderie to which it would be boorish for a man to fail to respond, if offered by another man. In too many instances, however, men will push such acquaintances to the limit, or, at least, will accept as a cue the subsequent demeanor and evident intentions of the woman accosted.

The Tenement House Act Upheld.—We note with pleasure that the first case against the New York Tenement House Department was recently decided in its favor. This decision is important, as the case was brought forth to test the constitutionality of the Tenement House Act of 1901. The department sought to compel the removal of a sink connected with a house owned by the complainant, who asserted that her house was in good sanitary condition; that the law was invalid because it was made specifically applicable to New York City, and not to a class of cities; and because its enforcement would mean the taking of property without due process of law. It is furthermore a satisfaction to note that most tenement house owners have, without recourse to law, seen the justice of the department's requirements and have willingly complied with them.

Germ-collecting Signboards.—Anti-tuberculosis congresses, public health defense leagues, and the many similar organizations, the proceedings of which are detailed from time to time in the lay press, would surely do well if they would co-operate to rid public thoroughfares and public conveyances of the many dust and germ-harboring signboards which now insult the public sense of the artistic; and if this be too herculean a task, to require, at least, that such signs be properly cleansed. This iniquity is very evident, indeed, on the elevated and in the subway stations of the metropolis; especially in the latter are light shut out and fresh air at a minimum—these being two factors upon which germ propagation depends.

RETROSPECTIVE

Calcium chloride as a surgical disinfectant is advocated by D. H. Stewart (*Am. Gynec. and Ped.*, May, '06). This substance costs ordinarily 25 cents a pound, which contains from 12 to 20 per cent. of chlorine. Squibb's product costs 33 cents a pound and contains about 35 per cent. of the gas. The cruder grades are the more irritating. Stewart advocates the use of this single disinfectant instead of the variety usually employed in any one operation. It is a very efficient hand sterilizer, although as commonly employed it is likely to cause eczema. Stewart would not use soap and the scrubbing brush; but would substitute sapolio, granulated sugar, aluminum sulphate and Squibb's chloride of lime. The nails should receive the greatest attention; for about them the danger lies. Sapolio should be used, avoiding the scratching or roughening of the hands; when it has been reduced to a white cream, a teaspoonful of granulated sugar should be poured into the palm and rubbed into this cream. Friction must then be employed until the sugar becomes quite syrupy. When the hands are then washed, the skin is found to be quite soft and pliable. Then the hands are plunged into a solution of one quart of water with two heaping teaspoonsful of chloride of lime and one of aluminum sulphate. The fingers are then successively plunged to the roots of the nails in dry chlorinated lime, which is well worked around and under the nails. The lime is then worked down the fingers and upon the palm; but it should be creamy, as a single lump will cause a dermatitis. The sensitive dorsum of the hand should be left alone. The hands should then again be plunged into the above-mentioned solution; and no greater friction should be employed than is furnished by a sterile cotton wad. If gloves are used they should be drawn on before the hands have had time to dry.

The Pathogenesis of Icterus.—There are both a hepatogenous and a hematogenous variety of icterus, observes the *Medical Record*. The latter is due to the disintegration of large numbers of red blood cells in the vessels. Icterus may also be due to a functional disturbance in the secretory processes residing in the hepatic cells, by which the direction of the stream is changed and the bile finds its way directly into the circulation from the liver cells instead of being guided into the hepatic ducts. This is the suggestion of Minkowski, who believes also that an icterus by parapneumonia is possible. Eppinger has also claimed that icterus may result from a stasis in the bile capillaries, resulting in a rupture of the latter and the entrance of the bile into the lymphatics, and from these into the blood.

Serum Therapy by the Mouth.—Paton (*Brit. Med. Jour.*, May 5, '06) has for eight years past given serums per os. He finds that thus used their action is neither antitoxic nor antibacterial. But the theory which best explains their action is that of tissue resistance; normal plasma of the horse, sheep, and ox in drachm doses four times a day by the mouth, restores lowered nutrition. "The reaction leading to restored function is obtained in the presence of infections to which the animal itself is refractory. Horse and sheep serum is valuable in tuberculosis; but of no use in influenza. Ox plasma is very serviceable in the latter, as that animal is very resistant

to gripe infection. Anti-diphtheritic serum is decidedly reinforced by oral administration after its subcutaneous injection.

The Diagnosis of Renal Functions.—R. C. Cabot, of Boston, distinguishes three sets of phenomena (*N. Y. Med. Jour.*, May 12, '06): 1. Renal irritation, showing itself in the presence of albumen and casts. 2. Renal insufficiency, which may exist with or without albumen and casts, showing itself in the physical characteristics of the urine, and in the condition of the rest of the body (oliguria, dropsy and uremia). Nephritis, which appears in the post-mortem appearances of the kidney. The evidence of irritation—albumen and casts—is not evidence of nephritis, which may or may not be present. "It is folly to send urine to a urologist for diagnosis, or for any more than a description of what is to be found." Time is the most important aid to the diagnosis of nephritis. Cabot concludes: Functions, not histological appearances, are what should be recognized in kidney disease. Albumen and casts never alone prove the existence of nephritis, for they may or may not accompany it. The physical characteristics of the urine, the visceral evidence of uremia, dropsy and cardiac involvement are, with time, the best help to functional diagnosis of kidney disease. The dilution test, the concentration test, and the quantitative estimation of the kidney's capacity to excrete particular substances, may be valuable.

Intracranial lesions as sequelæ of chronic purulent otitis media are discussed by M. A. Starr (*Med. Rec.*, March 10, '06), who includes acute encephalitis as an occasional sequence, the symptoms being very similar to those occurring in abscess. The cerebro-spinal fluid in meningeal complications shows the presence of micro-organisms with a great increase in the number of leucocytes, while in simple abscess such is not the case. The leucocytes of the blood are much more increased in number in meningitis and brain abscess than in simple acute otitis media; and in meningitis the count goes higher than in abscess. Moreover, a rapid rise in the ratio of polymorphonuclear leucocytes to other elements in the blood indicates cerebral complication.

The sanitary supervision of tuberculosis and other communicable diseases is dwelt upon by Billings (*Med. Rec.*, May 19, '06). All cases of phthisis, typhoid and cerebro-spinal meningitis are in New York City registered at the Department of Health; and there is an earnest effort (which every good physician should further) to have such registration as accurate and complete as possible. Every inhabitant of a house in which such diseases occur is furnished instructions as to the measures to be taken to prevent their extension. The bedding of such sufferers is disinfected; all premises which have been occupied by persons suffering from pulmonary tuberculosis or meningitis are disinfected after the patient recovers or dies. Charitable assistance or hospital care is provided as far as possible for all persons wishing or requiring it. The general public is educated as to the nature of the above diseases, the precautions to be taken against their spread, and the advisability of institution and sanatorium treatment. Phthisical patients who have no attending physician are visited at their homes by nurses and given necessary assist-

ance and advice; milk and eggs are provided when necessary and free medical treatment is given in the department clinics. The source of typhoid infection is identified when possible; and suitable action is taken. Meningitis cases are forcibly quarantined in their homes; and other children in the family are excluded from school. Malarial fever, abortion, puerperal fever, septicæmia, erysipelas and pneumonia are reportable diseases; but at present the patients are not visited.

The Stages of Tuberculosis in Children.—Hutinel and Lereboullet find that the first stage often develops at a very early age, usually in the mediastinal glands, more rarely in the mesenteric, where it remains latent (*Brit. Jour. Children's Dis.*, June, '06). The mode of entry is pulmonary, digestive, cutaneous or otherwise. This tuberculosis may remain latent indefinitely or become attenuated; it even seems in certain cases to confer a kind of immunity against further attacks. These are the favorable cases which end in more or less complete cure, as proved by the frequency with which tubercular foci are found at the autopsies made at the Enfants-assistés (more than one-third of the cases), and by the fact that there were only 19 phthisical children among 18,000 that were sent to live in the country. In other cases nutritional disturbances occur, the so-called pre-tubercular state is established, and instead of protecting, it predisposes to a further and more serious tuberculosis. This second stage is either an auto-infection, often excited by some intercurrent affection such as measles or whooping-cough, or is the result of a fresh access of tubercle from without, to which the debility caused by the latent tubercle renders the patient more vulnerable. It may then develop as either an acute, sub-acute or chronic affection. As it is curable it may sometimes become quiescent until fresh causes start a third stage similar to the second. This hypersensibility to attacks of the bacillus is comparable to that of certain serums and toxins (anaphylaxis), in which certain substances—"aggressives"—are formed in the exudation produced by the latent tubercle which prevent phagocytosis upon freshly inoculated bacilli. This evolution of infantile tubercle by stages is comparable to what occurs in other chronic affections such as syphilis, glanders and especially leprosy. It is thus important, not only to prevent tubercular contagion (the effects of which act equally on those free from and the subjects of latent tubercle); but also to strengthen the organism to defend itself against attacks of the tubercle bacilli, which too frequently exist there already.

The known medical value of radium is exhaustively discussed by Metzenbaum, who has had very extensive personal experience. He finds that lupus responds promptly to its action, with permanent results, equaling those obtained with the Finsen light or the X-rays. Small epitheliomata without glandular involvement heal rapidly under the action of the radium rays; these growths may be situated on the face, within the noses, in the mouth, pharynx, larynx, vagina, rectum or bladder—provided the tubes of radium can be brought into intimate contact or close proximity to the diseased area. Large epitheliomatous areas of the mucous membranes may not be influenced to any marked degree, probably because in large areas the dis-

ease is not only superficial but the deeper tissues are involved as well. (Upon areas in any way extensive we should certainly recommend the knife or the caustic; much time may be lost in the slower radium exposures, and a fatal condition may supervene which might possibly have been obviated by more rapid procedures, even though the latter be more heroic.) Metzenbaum finds that dermal epitheliomata respond far more readily than those of the mucus membranes, probably because the skin is kept dry and is not irritated by moisture or friction of the parts. Rodent ulcers about the face and head respond better to the action of radium than to any known agency excepting the X-ray; and the results, in Metzenbaum's opinion, are better than those usually obtained by surgical interference. Deep-seated malignant growths are beyond the influence of the radium rays; even when the growth is incised, and a tube of radium is inserted in its interior, there is then histological change in that part of the growth which surrounds the tube of radium.

In certain cases of total blindness, possibly when some of the fibres of the optic nerve still remain intact, a sensation of light may be noted when radium is placed in front of the eye or against the temporal region; thus far, however, this substance has given no beneficial results in the treatment of total blindness. When applied to old scars resulting from healed lupoid ulcers, radium causes them to lose their rough and fibrous appearance and renders the area quite smooth and pliable, resembling more nearly the healthy tissue.

Radium cannot be used like the X-rays to obtain skiagraphs, for it requires at least twelve hours' exposure before the rays penetrate the hand, and then there is not so sharp a differentiation between the tissue as is shown by the X-rays. Again ulceration would result from so long an exposure. The beneficial results of radium have been equally good when tubes of low activity, costing but a few dollars, are used, as when very costly tubes of very high activity are employed. Metzenbaum would class radium with the Finsen light, X-rays and surgery in the treatment of lupus; and with surgery and the X-ray in the treatment of rodent ulcer and small epitheliomata. This conclusion he bases upon data which have been accumulated up to the present time; and it may be modified by further developments.

Henoch's Purpura.—A case of this rare disease is cited by Longley, whose patient was also affected with tuberculosis. (*Brit. Med. Jour.*, Apr. 14, '06.) This case demonstrates also the value of adrenalin in cutting short the attacks and as a prophylactic agent. A delicate girl of eleven had suffered from tuberculous lesions of the spine, hip, and wrist joints for several years. Ten days after a severe wetting an extensive purpura appeared, which was especially marked in the legs. There was a slight temperature; and severe arthralgia, the joints being somewhat œdematous. Within two days she was free from pain; and the eruption had quite disappeared, only a few yellow stains remaining. On the sixth day the patient complained of abdominal pain and vomited everything she ingested. At the end of another twelve hours her condition seemed very grave; her face was pinched, her eyes sunken, the expression anxious, the temperature subnormal, the pulse quick and small. The abdomen was retracted, hard, and

acutely tender. The symptoms were of such gravity as to suggest perforation, but the liver dulness persisted. A morphine suppository eased the pain. Later in the day vomiting recommenced, and large blood-clots, having a fecal smell, were ejected. Convalescence from this attack was rapid. At weekly intervals fresh crops of eruption came out on the legs and thighs. As this subsided the abdominal pains recommenced. About three weeks after the first severe attack a second occurred, which commenced with pain and swelling in the left wrist-joint. There was a papular rash on the right elbow. These symptoms disappeared in twenty-four hours, to be followed by a severe gastralgia and vomiting of blood. After some hours there was a slight improvement; and a mixture of adrenalin in *ij.*, with liquor arsenicalis in *ijj.* was administered, upon which the vomiting and the internal pains ceased. For three weeks this prescription was continued, during which time she progressed steadily, gaining in appetite, flesh and strength. The tachycardia which was such a distressing symptom during the attacks, disappeared, and the pulse became normal. One later attack was speedily checked by the use of adrenalin and arsenic. (Osler in his Practice presents a consideration of Henoch's purpura.)

Chorea and rheumatism are related, declares Duckworth (*Brit. Med. Jour.*, June 23, '06). The effects of the toxins of rheumatism are spread much beyond articular or cardiac tissues; and the throat, the skin and the brain are frequently involved. The pathology of choreic and of rheumatic endocarditis are identical. Rheumatism is an infection; and Poynton's diplococcus of rheumatism, the micrococcus of Walker and the chorea streptococcus of Wasserman are all three identical. Although chorea is never caused by shock or fright, yet a neurotic factor must be admitted in a true conception of its pathogeny. The young, especially female, are most prone to it, probably for the reason that in these subjects the rheumatic toxin is apt to spread more widely and to act with greater intensity than in adults. The adolescent brain is also the more unstable. Chorea is distinctly more frequent in families prone to rheumatism; it may precede by many months an attack of rheumatic fever, or may supervene during an attack. The disease occurs markedly among the nervous or unstable members of a family. It is therefore a true cerebral rheumatism.

Rheumatic manifestations in children are discussed by M. H. Licard (*Med. Rec.*, May 5, '06), who calls attention to atypical symptoms. The abrupt involvement with polyarthritides and endocarditis characteristic of adults is often replaced in children by chorea, tonsillitis, erythemas, subcutaneous nodules and endocarditis, which frequently overshadow the joint involvement. The juvenile arthralgias in rheumatism seldom present the evidence of inflammation as in the adult; though there is moderate pain on motion. There is tenderness in the periarticular structures. The attacks last a few days or weeks and then subside; but show a tendency to recur. Rheumatism is seldom manifest under the second year; and very rarely before the first year. In most cases at two years and over the onset is gradual; the temperature not high—usually not above 102 degrees. The pain and malaise are moderate; there is a slight puffiness

or swelling; the joints most often affected being the knee, ankle, elbow or wrist, or the small joints of the foot and hand. Sometimes but one joint is involved; sometimes there is severe restlessness and pain, but without characteristic rheumatic swelling. Some cases are without fever and the pain is so slight that the child is not put to bed; these mild attacks may be overlooked. The temperature may be irregular and suggestive of influenza or malaria; here a minute examination may reveal a sensitive tendon or muscle. It may be that an endocarditis, a chorea or a persistent anemia will be the first intimation of the rheumatism. Pericarditis as a complication is more important from a prognostic standpoint; but it is less frequent than endocardial disease. Pleurisy may supervene. Subcutaneous nodules may appear, being attacked by pedicles to tendon sheaths, ligaments, or the periosteum; they are found most frequently about the elbow joint, tendon sheaths of the forearm and hand, the clavicle, the sternomastoid, the skull, the patella, the vertebral spine and the crest of the ilium. They are usually pea-sized and may occur in groups of as many as fifty. They are made up of fibrous tissue and may undergo degeneration and disappear within a few weeks or months. Erythema nodosum is the most frequent variety of erythema; the nodes are situated mostly along the tibial regions and the extensor surfaces of the forearm. They are red, raised, inflamed, and very tender; their long axes are parallel to the limb. They have ecchymoses upon fading. Tonsillitis and pharyngitis are closely associated with articular rheumatism; and anemia, when present, is severe. In every case of persistent anemia we should think of rheumatism.

A Tent Shack for Consumptives.—Pomeranz (*N. Y. Med. Jour.*) states the essential requirements, according to scientific and hygienic laws. He believes with Blumenfeld and Dettweiler that temperature, moderate or extreme, humidity and atmospheric pressure exert very little, if any, influence upon tuberculous patients. The tent treatment of the phthisical can therefore be instituted anywhere, provided the chosen locality has pure air and the soil be dry and well-drained. Ventilation is essential—absolutely; by comparison the shape and size of the tent, the appliances employed within or without, the kind of covering to be used, the architecture, are minor details. From the standpoint of ventilation the best tent can be constructed as follows: A circular or oval floor of wood is made, preferably in a few sections; this is to be elevated at least a foot from the ground so as to obviate any dampness. Upon this a skeleton of thin wood is built in the shape of an enormous cone. At its apex there is a large space, into which a glass window is fitted. The window serves a threefold purpose. In fair weather it can be opened and left so by means of guy ropes, thus providing an excellent exit for the heated air and noxious vapors of the interior; in stormy weather it can be closed; at all times it admits abundant sunshine. Colored canvas or very heavy duck may be used as a covering; this is stretched out upon the framework of wood and so arranged by means of ropes that its lower margin comes below the floor of the tent, leaving a space between it and the floor. This permits of a continuous slow flow of pure air into the tent, the dimensions of which are made to suit the indi-

vidual and the size and number of objects which are to be put into it. A tent thus constructed will insure nearly perfect ventilation. Next in importance is the heating of the tent interior and the constant maintenance of an equal temperature; a small coal or wood stove, with the pipe exit on one side of the tent, is the best means to this end. With regard to the objects within the tent: A reasonably large bed, with a firm hair mattress, is placed on one side; next to it a small washstand with a pail or pitcher of water; a bureau, an arm and ordinary chair, a rug, a table, a desk, a trunk, shelves for bottles, books and food, can all be suitably arranged. Oil or candle light can be provided; or, best of all, electric, if connection can be made.

In performing venesection we should select the median cephalic vein at the bend of the elbow, which is further from the brachial artery than the median basilic vein. The external jugular vein and the internal saphenous vein have also been selected when from excess of fat, or in children, there is difficulty in finding the vein at the bend of the elbow (Dr. John W. Wainwright, *International Clinics*, Vol. I., 16th series). A lancet, several bandages, a small antiseptic dressing, and a bowl to receive the blood are required. The part above the site of the vein should be made aseptic; the venous circulation should be obstructed by a few turns of a roller bandage about the middle of the arm (the veins below should become prominent, but the bandage should not be tight enough to obstruct the arterial flow). Being sure not to incise the brachial or any other artery, the surgeon steadies the vein with his fingers, passes the point of the lancet beneath, and incises quickly, making a free skin opening. The blood flows freely; the amount abstracted is governed by the condition of the pulse and the appearance of the patient. The roller bandage is removed, the wound washed with a mild bichloride solution, a pad of gauze is applied, and a bandage placed over all. If the jugular vein is to be opened it must be rendered prominent by exerting pressure at the outer edge of the sterno-cleido-mastoid, and then incising the vein parallel to its fibres. In opening the internal saphenous care must be taken not to wound the adjacent nerve. The patient had best be sitting or semi-reclining, in order that while operating the surgeon may judge the effects.

The perils of the aromatic elixir are pointed out by the *New York Medical Journal* (July, 21, '06). We look upon such a "simple" elixir as an innocent vehicle, generally quite palatable. Nevertheless, such an elixir is alcoholic, and thus may be inappropriate in some cases, especially in children. There is in many elixirs almost as much alcohol as in brandy or whiskey. Of course it would on this account be inadvisable to prescribe such a preparation for a sedative. Another danger is the indiscriminate prescribing of the elixir as a vehicle for the bromides and for chloral hydrate. Such mixtures are prone to undergo decomposition in the presence of an alcohol preparation, the result being the formation of the dangerous body known as chloral alcoholate—a liquid of such specific gravity that it floats on the top of the mixture. Unless a "shake label" is placed on the bottle the patient may get the whole of the chloral in the first dose or two. It is best to order chloral dissolved in a simple aromatic water, in syrup of orange with orange-flower water, or in aqueous solution to be diluted with milk.

MISCELLANY

Lung gymnastics are well advised by Sexton, of New Orleans, who states that if deep breathing were practiced for a few minutes, three or four times a day, respiration in the wider sense (the conveyance of oxygen to the furthest tissues of the body) would be rendered more healthful.

Defining a Chemist.—The story is told of Berzelius, who made most of his experiments in the kitchen, with his cook as his only assistant, that a neighbor once asked the latter: "What is your master?" "Oh, he is only a chemist." "What is that; what does he do?" "Oh, he has something in a big bottle, then he pours it into a smaller one, and then again into quite a tiny bottle." "And then what happens?" "Then I throw it away."

Dust shortens life is the opinion expressed by Sir Lauder Brunton, in an article contending that it ought to be the rule, rather than the exception, for men and women to retain their life activities for ninety to a hundred years. Dust, he declares rightly enough, is one of the greatest enemies of advanced life, since it is the frequent cause of colds and respiratory diseases. He has frequently contracted a cold in the head on taking a dusty book from a library shelf; this has occurred so regularly that he now resorts to sponging the dusty edge with a carbolic solution before disturbing the deposit.

A Public health conference was held in the Hudson Theatre in New York City, with the result that a national society was formed for the purpose of combatting the adulteration of foods and drugs, the sale of alcohol and opium in the guise of "patent" medicines, the practice of the quack and the charlatan, both in and out of the medical profession, the use of the United States mails for fraudulent and indecent advertising, and other dangers of a like kind to the public health and morals. Many delegates from medical, philanthropic, religious, and charitable organizations in all parts of the Union, were present.

Oxygen in Tablets.—A firm of English manufacturers interested in submarine boats are producing "oxylith," which they describe as oxygen in its latent state. This can, by the action of water, be turned into a gas containing fully 98 per cent. of oxygen, just as acetylene gas is produced from calcium carbide. Oxylith is supplied in tablets at a small price, and is said to be a complete substitute for compressed oxygen in heavy steel cylinders. It is admirably useful in supplying fresh air to submarine boats, the needs of which have led to its production. Possibly these oxylith tablets may find a place in medicine.

Bellevue has an orchestra, composed of internes skilled in musical instrumentation. Dr. Kempf, who wields the baton, is also a brilliant player upon the piano. There is a choice assortment of violinists, mandolinists, guitarists, cellists and bass viols. Drs. Rogers and Black form a very strong team on the piccolo and flageolet. There is also a fine vocal quartette. It rejoices the heart to know of these things; for now, let us hope, harmonious relations will obtain between the superintendent and these accomplished internes. The latter should henceforth bang their instruments, and let "the office" alone. Besides, here is an ideal opportunity to test the value of musical therapeutics.

A French institute for cancer study, similar to the Imperial Cancer Research Fund in England and corresponding institutions in Germany and the United States, will soon come into existence. A league for combating cancer was founded in France in 1892, of which Verneuil was the principal member, but it ceased to exist owing to lack of funds. Dr. Poirier, in a paper recently read before the Paris Academy of Medicine, proposed the establishment of an organization to unite the efforts of French inquirers, to furnish them with material and in general to help them carry on their labors. Dr. Henri de Rothschild at once contributed \$20,000 toward the fund of the new league.

Dr. George Franklin Shiels, of New York City, has received from the War Department a Congressional medal for bravery on the battle-field during the Philippine insurrection. In 1899, while serving under General Wheaton at the battle of Tuliatan River, this physician, seeing two wounded Filipinos lying in the open space between the firing lines, started on a run for the spot, despite the dreadful fusillade that was going on. He lifted one of them to his shoulder and walked back to the line with him. Four soldiers, who had followed him, carried the other native. Again, he performed a similar act at the battle of Zapote Bridge, and was then recommended by his commanding officer for the brevet of Brigadier-General, a most unusual distinction for a surgeon.

Consumption Checked in Mills.—In two of the largest mills in Providence, R. I., physicians have been engaged at the expense of the owners, to attend the operatives; the same encouraging and sensible course is pursued at Olneyville, where 2,000 employees of the National and Providence worsted mills are carefully watched from day to day by experts. Dr. Frank T. Fulton, of Providence, wisely suggested these means of fighting consumption in the workshop. Cornet, of Berlin, has demonstrated that the afflicted workman is likely to infect his fellow-workmen more than the members of his own family. In Germany, moreover, workmen must leave their factories and go to the sanatoria until their disease is at least arrested; by this means its spread is very materially checked. In Rhode Island an effective organization seems to be forthcoming among the many thousands of mill employees; this example should be followed throughout the Union.

To Improve the Human Race.—A fairly sizable task has been assumed by Dr. Millet M. Hayes, Assistant Secretary of Agriculture at Washington, who has appointed a committee of eminent scientists and educators, whose duty it will be to investigate heredity in its application to the human species. For many years Dr. Hayes has studied heredity in plants and animals; he now desires to apply his scientific deductions to human beings. The committee will take up and devise a means of recording the blood values of the different races; it is hoped that they will suggest means for improving the heredity of the family, of the people and of the race. It is hoped that practical methods may be suggested, by means of which disease, vice and crime may be prevented. Such concrete questions, for instance, will be taken up as to whether two blind persons should marry; will such parties to a marriage cause the transmission of their defect? We submit that the work here sketched should prove very important and salutary.

THE HYGIENIC ASPECTS OF MODERN PROGRESS.

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GENERAL factors bearing on health may be classified as follows:

1. Those influencing the prevalence of infectious disease germs.
2. Those determining the inevitable degree of exposure to the elements.
3. Those determining the inevitable risk of traumatism.
4. Those influencing the quality and quantity of the ingesta, including not only food and drink, but air.
5. Those influencing nervous wear and tear.
6. Those influencing direct prophylactic measures, including therapeutic measures which may be quite directly or only remotely prophylactic.

If we compare social and economic conditions as at present existing with those of the past, the contrast is partly due to the discovery of new scientific principles, partly to their practical application by means of inventive genius, partly to a disposition and ability to put into application principles already long known. Very few actually new scientific principles have been discovered within the memory of men now living, although important extensions and particularizations of old principles have multiplied rapidly within the last few years. The study of the details of scientific principles goes hand in hand with invention of a practical nature, and the two can scarcely be separated. For example, the Crooke tube and many of the phenomena of fluorescence were known a generation ago and, looking backward, and recalling the fact that these interesting and even spectacular manifestations were repeatedly demonstrated to classes in college, the wonder is that the practical application to determine differences of opacity was not made many years before Roentgen. All of the general principles of the dynamo were understood long before the dynamo in its present form was contemplated. Indeed, the electro-magnetic dynamo actually existed as a scientific toy, for classroom demonstration, for many years before it occurred to any one to increase the original source of energy to a sufficient degree and to make the magnetic impetus operative several times in a revolution, so as to produce a practical instrument.

At present scientific and commercial interests are joined in so many large enterprises that every new invention and conception is immediately investigated with a view to practical applicability.

Many of the strictly modern advances are due only in a slight degree to new discoveries, but mainly to the development of popular sentiment along the lines of a sane socialism. For example, comparing the practical value of the various national, State and local health boards of a generation ago and of the present, nine-tenths of the improvement is due to the assumption of greater powers, partly by legislative authority, largely by popular support, strictly scientific advances having been relatively meagre, and their carrying out in practice still less.

The development of the United States Marine Hospital Service so as to include the public health has been of very recent date, and, indeed, has not yet progressed either to the point of a well-recognized sphere of usefulness nor to that of proper executive control of local

problems. Applied bacteriology remains largely a function of certain State boards with regard to condemnation of cattle and supervision of epidemics and of the larger municipalities with regard to investigations as to the existence of disease in individuals. So far as the writer knows, Ontario County, New York, is the only instance in which an essentially rural community has provided for analogous official aid in the detection and prophylaxis of infectious diseases.

Without attempting accurate attention to details, nor the separation of the credit due to various sources, it may be stated that, within the recollection of the more mature half of the population, Asiatic cholera and typhus have become practically extinct, that tuberculosis has been diminished in frequency by at least 25 per cent. and has come to be recognized as a fairly curable disease. Vaccination has rendered variola mainly a disease of choice and, indeed, it has become difficult to choose the risk. At present the objectors to compulsory vaccination are largely bolstered up by the very rarity of the disease.

It has become recognized that diphtheria is frequently present in a mild form, and the knowledge of this fact has facilitated quarantine measures and radical treatment, not so much required as a matter of individual therapeutics as to prevent the spread of the disease from those not themselves dangerously affected. The antitoxin has, nevertheless, been demonstrated to be of great value and, indeed, in no other instance has an antitoxin or other means derived from the germ of a disease, been proved to be notably efficient, although we are justified in holding out hopes for the future development of such therapy on a wide plane.

In many respects, especially the commercial use of electricity of high potential, and the introduction of various forms of rapid transit, of agricultural machinery, etc., and the increase of manufacturing machinery, the tendency to traumatism has increased. On the other hand, the very increase of dangerously powerful aids to the hand of man has led to precautionary regulations and individual care, and to the introduction of various protective devices which probably more than counterbalance the traumatic tendency. The specialization of industry has removed from daily contact with danger a large part of the population and has rendered automatic precautions possible. The gradual concentration of population and growth of peaceable tendencies, absence of savages, wild animals, etc., has practically nullified the constitutional right to carry firearms, and, with infrequent exceptions, only the lowest class is at all liable to injury at the hands of other human beings. Even war is becoming unpopular, the more civilized races having reached the mental attitude of the boy in the woodshed who staved off a chastisement by saying: "Hold on, Dad; let's argue."

Exposure to wet and cold which, in spite of bacteriologic arguments, remain prolific predisposing causes of various forms of inflammation, especially of the air passages and kidneys, and also, practically, causes of rheumatism—whatever that term may finally be decided to mean—has been materially lessened within the memory of persons still comparatively young. Waterproof garments and protective coverings for vehicles have come into vogue, and popular opinion demands protection both for the public and for employees in various ways which would have been ridiculed a few years ago. Steam

and hot water heating have largely replaced fireplaces and stoves in homes and offices, factories, etc., and instead of a litter of foul hay on the floor of street-cars, stoves or electric heaters prevent chill as well as the development of infection. Vestibules on cars for the protection of motormen are in almost universal use in Northern cities. The great increase in routes of rapid transit and the provision of comfortable as well as rapid and convenient public vehicles has rendered exposure by pedestrian travel and in private conveyances much less general.

The various developments of plumbing are usually thought of either as mere conveniences or as opponents of infection. As a matter of fact, the avoidance of exposure in drawing water, securing fuel and means of illumination, and particularly in the disposition of the excreta, is a still more important factor. The indoor closet is almost universal in cities, and the possibility of so-called city improvements in the country is already recognized, especially on account of the invention of machinery for driving wells and for deriving power from the wind or from gasoline. The immense saving of heavy muscular strain in lifting, in the disposal of slops, wash water, etc., is also an item of tremendous importance in the health of women, and it must not be forgotten that chronic constipation with its serious secondary results has been greatly minimized merely by the fact that publicity, exposure and foul atmosphere no longer lead to the postponement of the calls of nature.

Among the factors influencing the quality of ingesta may be mentioned the development of sources of supply on a large scale, which has led to a relatively steady market, and which has, at the same time, compelled the introduction of preservative methods to avoid loss from oscillations of supply and demand. A generation ago sea food was comparatively little used in inland communities, tropical vegetables and fruits were a luxury, and game was almost synonymous with rotten meat. To-day rapid transit and refrigeration have not only enormously extended the variety of food stuffs available in any one locality, but have extended the period during which any one food stuff could be available. Indeed, with an occasional exception, a wealthy man in any community can get any food at any time. The writer can well remember when bananas were considered a sick-room delicacy, though they are of real service only as a food supply for the healthy. Goethe wrote a poem on the occasion of leaving an orange for one of his numerous lady loves, and the older people can remember when the poem did not require a historic note to save it from ridicule. Sea fish, which are certainly more appetizing, if not actually more wholesome, than fresh water fish, are now almost as cheap as the latter in inland towns, and the oyster-can has almost ceased to be a factor of importance in inland ash barrels.

Thirty years ago, at the Centennial Exposition, one of the most popular objects of curiosity was a glass case containing refrigerated fruit, meat and vegetables. Now every large town has its cold storage house, and every grocery and home, except the most humble, a refrigerator. Modern invention has, indeed, rendered the supply of ice independent of climate and weather.

Country people still cling to the idea that city people are unfamiliar with milk that bears a scum of yellow, but, as a matter of fact, the ordinary city supply is better than that of the careless farmer.

Systematic inspection has not only improved the quality of milk, but of meat, and a large proportion of meat infected with trichinae, tubercle bacilli, septic germs, etc., is excluded from the market. Recent investigations have shown that great abuses still exist, but have also shown that these may be, in large degree, prevented, and not the least important result of the investigation has been the development of a popular sentiment that will ultimately rob the old legal motto, "Caveat emptor," of its sinister meaning. The right of the buyer to exercise care, in advance and systematically, through public agents, to insure good quality, full measure and reasonable price, is becoming recognized as something more important than the individual liberty to cheat and defraud. Many of those now living will see the day when the most inexperienced can buy practically any commodity, at any place, with the same sense of security and with the same courteous treatment which we have grown to expect in trading at responsible department stores.

In spite of the jokes directed at them, the various breakfast foods mark an important epoch in dietetic hygiene. Most of us can remember when the only available cereals were oatmeal—which some cynic has said is fit only for horses and Scotchmen—rice, and hominy. The great variety now on the market tends to diminish the excessive consumption of meat, and variety itself is an important item in alimentary hygiene.

The canning and preserving industries have greatly added to the variety of the diet of the poor in winter. While many abuses exist, these require only proper initiative, already taken, and perseverance for their correction. Particularly commendable is the preservation, by hermetic sealing, without chemical antiseptics, of foods in an approximately fresh state. Such goods, in spite of the tendency to overuse through laziness, have greatly diminished the sufferings of explorers and travelers, have rendered scurvy an unnecessary disease, and are also of great value in ordinary domestic life, counteracting to some degree the trouble of the middle class in securing domestic help, facilitating hospitality, and in many ways reducing the friction of domestic life.

An important side issue of these various preserving industries is that many of them, from business motives or through what appears in some cases to have been genuine philanthropy of the best kind, have thrown their doors open to the public and have made their factories object lessons in neatness and in the proper care of employees. In not a few instances such businesses have actually ameliorated the social conditions of localities by offering regular and moderately well paid employment and in encouraging social and economic cooperation—the best forms of socialism.

Sanitary boards have, in many instances, improved atmospheric conditions by restricting nuisances of all kinds, although it may not be out of place to remind our readers that a bad odor is not, of itself, particularly harmful, and that saprophytic germs are not of serious import. Building laws have, conjointly with competition in renting as a distinct business, vastly improved the ventilation and lighting of homes, factories and public buildings. Heating and lighting methods which do not draw upon the air for oxygen have also been a great factor in this regard. The writer is sceptical as to the harmfulness of dry air in living rooms, but admitting that lack of moisture is bad for human beings as well

as for glued furniture, the lack is easily supplied. Carbon monoxid poisoning from superheated stoves and defective flues has been markedly diminished by other heating devices, but has been, to some degree, increased by the tendency to substitute water gas for the older, hydrocarbon gas. This evil can be regarded as temporary, since only extortionate business methods stand in the way of the substitution of electricity to furnish light, heat and power now derived from oxidation.

Among modern improvements bearing mainly, or, at least, considerably upon nervous wear and tear, may be mentioned rapid transit, asphalt pavements, rubber-tired vehicles, good roads, welded rails, and a multitude of labor-saving devices, as well as the popular insistence on a higher regard for its comfort along various lines. Health boards are even beginning to act against unnecessary noises, including those due to domestic animals, in cities. Within the last decade a decided check has been imposed upon the migration from country to city, as shown by census reports. This check is largely due to suburban trolleys and good roads and to the realization by farmers that many city conveniences could just as well be had in the country. Regulation of traffic, especially freight rates, is also rendering it possible to carry on considerable industries in small towns and villages, and thus to hold a large class of the population where, hitherto, largely on account of freight discriminations, openings for ambitious young men were lacking.

On the other hand, nervous wear and tear has very materially increased on account of the increased cost of living, partly due to strictly economic factors, partly to a more or less justified ambition to live on a higher scale of comfort. Mere increase in population necessarily increases the cost of living room and of all commodities, especially meat and vegetable foods, requiring land for their production. Cheap meat demands land that can be rented or held by actual ownership at a cost of a few cents a year per acre. The so-called middle class—that is, the one which performs no actual productive labor, and which has not the opportunity or the skill to manipulate other persons' wealth on a large scale—has suffered most. This is largely because every one wants to belong at least to this class. The overcrowding of our own and the legal profession, for instance, has been due to the ambition of young men whose fathers were engaged in actually productive labor. Again, we have not been able to perform the miracle of establishing a wage scale higher than the average productiveness of the country. So-called skilled labor represents the average ability of any community. We have not been able to pay such labor 40 cents or 50 cents an hour without increasing the cost of living for the simple reason that the average productiveness of the country does not equal the scale of living represented by a yearly income of \$1,000 to \$1,500. In the true sense, we have debased our currency by attempting to comply with the demands of labor. Enough gold and silver has been mined to keep the paper dollar at par, but enough meat, wheat, potatoes, wool, cotton, etc., have been produced to keep the dollar at par with the demands of living. We need not complain at the sufferings of the middle class. We established this country to make men free and equal, and we are getting exactly what we wanted or thought we wanted. As has been stated, the middle class suffers partly because it

has been increased by ambition so that it is far in excess of the demand for such a class. In addition, it suffers because it is largely paid by salaries, fees and established prices which cannot easily be raised by strikes or similar methods.

Most persons forget that labor means something much broader than hiring a definite man or woman to do some manual task, like painting, building a house or washing or cooking. It enters into the cost of every article used. Even gold and platinum are not found—except occasionally—but are worked out of the ground at such a cost that the mines really represent no better investment than copper mines, coal mines or limestone quarries or brick yards.

Prices can, of course, be reduced, notwithstanding increased cost of labor, by economic methods and proper control. In the writer's experience the only staple expenses that have thus been reduced are for bananas, grapes, sugar, shoes, certain dress goods, street-car fare, and natural gas, as compared with illuminating gas, or, under certain circumstances, with other fuel. Generally speaking, the great staples have advanced in price and must continue to do so unless modified socialistic devices are adopted to turn the profits back into the pockets of the people as a whole.

Among those developments of modern life which have direct bearing on health are, of course, to be included the strictly medical discoveries, which need not be considered in detail. Lest we be too arrogant, it is well to remind ourselves that, all told, the discoveries of modern medical science have not had the effect in lessening disease that Jenner's exploitation of vaccination had, and that in the century and more since he published the purely empiric observation of farmers and milk maids, no other germ disease has been similarly quenched. Indeed, it is only within the last three years that the real, scientific significance of vaccination has been appreciated.

Without attempting to discuss bacterial diseases in general, it is worth while to mention Oliver Wendell Holmes's prophylactic measures against puerperal fever, as similarly antedating the logical development of antiseptics against sepsis in general.

It must not be forgotten that every therapeutic measure is, in a sense, prophylactic. Nowhere has this been better demonstrated than in the lessening of female invalidism by radical pelvic surgery.

Among the modern inventions entirely outside the realm of medical science which have nevertheless had a highly practical bearing on the practice of medicine, two, to my mind, stand out conspicuously—the vulcanizing of rubber and the telephone. General principles of asepsis and antisepsis depend in their application largely upon rubber sheeting, rubber gloves, rubber tubes, etc. Not to mention the almost innumerable instances in which rubber is at least a superior and often the sole available material for the manufacture of instruments or their parts, scientific gastroenterology may be mentioned as virtually founded on rubber. It may also be stated that sociologic conditions bear upon our professional experience and practice in no way so decidedly as in regard to the limitation of fecundity, which, in turn, may be considered as the direct result of the development of the rubber industry.

It is only necessary to mention the telephone as facilitating the work of physicians and as having a most

important bearing on the saving of life and prophylaxis of serious consequences of emergent traumatism and disease. But it may not be so apparent that the telephone is also a powerful agent in diminishing nervous wear and tear for the population generally, especially when we think of it as a disturber of sleep and an interrupter of meditation. Many individuals refuse to have an instrument in their homes on account of such interruptions. Yet, trying as this invention sometimes is, we must not forget that it is an important link in the cordon of protection against fire, burglary, and similar disasters; that it binds otherwise solitary and morbid lives to active companionship; that it multiplies the efficiency of many workers in many different lines of activity; that it supplies almost instantly information which otherwise would require many tedious steps and much loss of time, and that it allows trains of thought to proceed which, without it, would be stalled for weeks, perhaps to the utter loss of valuable but perishable intellectual freight. No doubt it has prevented many suicides and monumental anguish and suspense which otherwise would result in serious nervous and, ultimately, physical disease. Even when not in use the mere thought that one is in touch with distant friends, advisors and protectors, cannot but have a wholesome influence on the nervous balance.

One other thought is suggested by the telephone: When we consider that this instrument was a mere scientific toy, not even thought worthy of a conspicuous place at the Centennial Exposition, that it has revolutionized business methods and that within the last five years (scarcely more) it has had an unprecedented extension of use, one would naturally infer that there has been a gradual rise from crude beginnings, followed by some sudden stop due to new invention. As a matter of fact, for practical purposes, the first telephone services, installed about 1878, were nearly as efficient for practical purposes for short distances as the most approved modern instruments. Long distance telephony is still relatively infrequent, and there is no important device connected with telephony at present which could not have been exhibited at the Columbian Exhibition in 1893. The present usefulness of telephony depends in great measure not on invention, but to the forced application of economic laws providing for wholesale business. So long as the rule has been followed to make the price of the telephone all that the traffic would bear, its use has necessarily been restricted. Forced competition has resulted in so large an accession of business as probably to benefit the companies as well as the public.

In the treatment of bronchial asthma Zuelzer warmly recommends the injection of atropine to cut short the paroxysm; the emphysema, and therefore the dyspnoea, are thus promptly relieved, for the reason that atropine paralyzes the terminal filaments of the vagus, to irritation of which the emphysema is due. Zuelzer finds that emphysema may be produced experimentally by electrical stimulation of the vagus; if, however, the animal has previously received atropine no emphysema supervenes. Injection of atropine also brought immediate relief in a case characterized by extreme expiratory dyspnoea, emphysema, with tenderness of the right vagus and slowing of the heart's action.

INFLUENZA AND SOME TREATMENT.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA.

IN these days of fertile phraseology, influenza may read rather old-fashioned. But how can eternal conditions, reading either backward or forward into the future experience, ever become a new thing under the sun? In my own estimate, influenza is a very comprehensive and significant name, that fairly represents varied persistent combinations of physical conditions common to impressible humanity. Names of variations of disorders, like names of many products of nature, are merely servants of convenience by adoption and popular consent. But the conditions represented by such name often present remarkable scope of effects. Take the word "apple"—what combinations of common elements represent the great variety and qualities and taste found in that enduring fruit—and yet it is all "apple." So there is a heap that pertains to influenza—all the variations or expressions what we may.

The modern word "grippe" has come into handy vogue as a substitute noun for influenza. If we understand the "stuff," it is quite immaterial whether we adopt a label of English, or French, or Arabian, to list it by in catalogs and compilations. We are tempted to reach for a snuff-box when we read details of the history of influenza, wherein authors limit its beginning in the human race to some certain date of the epochs of disease—because of discovering "no prior mention." Lack of type and the art of printing made silent dearth of authors and output of books of records when the world was younger and disinclined to inscribe for public notice references to invasions of snuffles and sneezes among the people. We should all reason along the paths of nature for ourselves. The laws of nature do not change because some modern observer catches on to the tail of a comet thousands of years old and fancies in a near-sighted way that he is the discoverer of a constellation of new revelation because he happens to see something that is new to himself. A moment of "swelled head" never demonstrates a sterling truth. And when our learned expositors spasmodically declare to us for acceptance and belief that the occasional storms of unusual or aggravated influenza mean epidemic invasions of a particular contagion or contagious element of that most common of all diseases, is it not enough to turn an assayer of reflective thought livid in the face at the ill-conceived veneer of snap conclusion, glued together by the brittle shellac of inference, and without logically solving the problem of how material facts naturally produce material effects according to the force of cause and the impressibility of the subject acted upon! The potency of the atmospheric environment, the whirl of winds and electrical waves about, above and beneath us, the transition to muggy days and nights, with their smother of smoke and carbon gases, spreading palls of languor and depression and respiratory embarrassments over millions of inhabitants at the same time—how can physical resistance escape broadcast impress that makes for disease? That is not a contagion. Epidemic influenza from germs? An entire commonwealth anchored with aches and coughs and raking pains in a few hours from contagious germs? What a monstrous cloud of bacilli to suddenly overspread a territory like sweep of cyclone! And whence their voluminous source and advent? Not

from case to case, from breath to breath, in accordance with the accepted orthodox process of contagious distemper!

Influenza is always induced by inhaling a poisonous quality of breathing-air. The nasal tissues line the vestibule of the greatly extended respiratory structures. The congestion, the smarting irritation of coryza, or acute catarrh, of the nasal mucosa, usually termed "cold in the head," is really a vestibule phase of influenza. The congestion, the smarting irritation and inflammation, attended with so many acute discomforts, possibly inaugurated within a few hours almost as if by scorch of flame, severely attest the toxic nature of the cause. Before the end, many handkerchiefs disgustingly attest the degenerate drift of the stealthy aggressor. Now, then, following on the indisputable basis that on continuous line of tissues inflammation is yet inflammation—an extended effect from extension of cause—influenzoid invasion to the throat presents us the painful distortions and often excoriations, even abscesses of what we term tonsillitis, and of pharyngitis, including its diphtheroid shedding of scathed and deadened surface. Continued a reach further, and the larynx is involved, and the trachea, too often with croupous exudations and shedding "membrane" and vital exhaustion from smothering impedimenta to oxygenation of the blood. When the scathing from poisoned breathing-air swamps the bronchi and the lung channels, the calamity of the gravest phase of influenza has launched its perils, wherein successful recoveries are best promoted by rational comprehension and sensible management. One may "diagnose" the condition as "bronchitis." Another may naturally reckon it as "broncho-pneumonia." Another's thought might decide the case as one of "pneumonic gripe"—all relatively proper. But, all the same, influenza by extension of local aggression covers the entire situation, and almost unifies an enlightened treatment, which, if softened to rational modes affords to all these varieties of disease-expression their best prospect for timely relief. Later on in this paper our attention will revert to some practical management of these influenzoid conditions.

Suppose we have a little talk on the points already suggested. I believe that influenza is the oldest and most persistent disorder known to humanity. I do not believe that Adam, or Moses, or father Abraham, never had occasion to blow his nose, nor experience painful cough—simply because the book of Genesis does not exploit the fact. It would be absolutely too literal to fancy that the wives and daughters of the Biblical age of the world could abide the smoke of their camp fires and tents without a sore throat and headache. From that day to this there has been a continuous existence of influenza in its varied forms. I have just referred to at least five disorders differently named simply because differently located in the breathing channels, and for no other reason, but are all types of influenzoid infection. But the toxic impress on blood and nerves must not be overlooked. Attacks of influenza are not announced by considerable warning symptoms. Time is too short and human nature too impressible for prolonged preliminary tokens. There may be a day or two—perhaps but a few hours—notice of encroaching weariness, when with chilly wafts of shrinking vitality, men and women may glide into mortal bundles of gloom-

iness, prostration and pains. The degree of aggression, and the relative susceptibility of the individual and of different organs to the toxic impress, determine the nature and trend of cases. In some the nervous system suffers most; in others the air-passages; in others the entire body, including the pleuritic and peritoneal tissues, are sorely swept by the hurt and scourge of hyper-carbonized or unregenerated blood corpuscles. In this depraved condition the digestive system is stranded in anorexia. Even the sense of taste is suspended, besides aversion to food. Disposedly among persons who pursue indoor vocations, with restricted and gaseous air, pronounced influenza often inflicts the initial lesion to lungs and constitution which deepens more or less directly into pulmonary consumption. Yes, we will call it tuberculosis, because of the presence of tubercles—just a name again—but the tubercles may be produced readily enough from degenerate blood corpuscles, dead and churned to caseous refuse by the striving resources of nature. The real disease is what I have premised above—the tubercle and its "losis" are but results. Melancholy, insanity, suicide, following the prostration of acute influenza, have unfortunately and sadly attested the wretchedness with which a poisoned breathing-air, through depraved or unregenerated blood, can impair the brain and nerves and dethrone the mental functions.

Inasmuch as influenza, or gripe, strikes the system through the breathing channels, cough is inevitable. The characteristic cough is vehement, explosive, and the chest pains, in acute attacks, sharp or tearing—in medical parlance, called "lancinating." Have you ever experienced the sensation of tear of violent cough in what we call pleurisy or of pleuro-pneumonia? Then you know, as the writer does, something realistic of the fangs of deeper influenza. The acute involvement of the lungs, or the pleuritic tissues, or bowels, brain, heart, in conjunction with the initial shock of depression too often hasten the broken forces of life into fatal collapse. No vital organ can long sustain itself under the depression of devitalized blood, which in normal condition in the machinery of life is the sustainer of our being in this world. Healthful air normally inhaled is harmless to the lungs and to the channels leading thereto. Attacks of irritation and soreness of throat and respiratory passages logically and pathologically imply that an overdose of harmful air, caustic or poisoned, has been drawn over these surfaces in the process of breathing, and thereby imparted local and constitutional injury. The poison haunting such air, being mainly gaseous from home or outdoor sources, while preventing normal aeration of the blood—while deepening the blood's impurity at every breath—is thus involving with corresponding irritation and disease internal organs and structures, through which this unpurified and dying blood must circulate until stagnated in the capillaries of the parts with congestion. I hold that this connecting link between toxic breathing-air and resultant disease is the simplest problem of fact in physical law.

The distressful pains in head and back, the hurt and ache of muscles, the waves of chill and flashings of fever, twinging of nerves and laboring heart, dryness of mouth and disgust of stomach, raw soreness of lung and restriction of breath, grating of pleura and excruciating cough, profusion of sweating and prostration of strength—these combined constitute the gross wretched-

ness of an attack of profound influenza, as experienced by myself in a tedious and dangerous seizure during a broadcast epidemic in January, 1890. The cough in that epidemic was severe, comparatively dry, explosive, persistent, because of the comparatively cauterized, anhydrous character of the irritation in the breathing channels. I shall never forget the quality of atmosphere condition that prevailed that winter in Philadelphia. An "open winter"—soft, dank, muggy state of air; foggy, smoky, gassy, because all the fire or fuel gases of the city and its transportation business were blanketed in the common breathing-air that population inhaled. Certain would-be wise men in our profession wrote and argued that the gripe epidemic that afflicted our Eastern States so sorely that winter was a contagion that had drifted here from Russia—because this severe development of influenza had appeared in Russia prior to its prevalence here. If such writers could reason an inch above their eyebrows they would perceive the fact that winter in Russia begins earlier than in the United States. And since Russia also had an "open winter" for a month, why would not similar conditions in the Capitol of Russia induce similar effects, even to the royal palace? If special authority is to be believed, bacilli are not found in salt-sea atmosphere more than a mile or so from shore. How then could a swarm of contagious influenza germs, even if there were such improbable things, how could they navigate the winds and storms of the Atlantic Ocean in winter from Russia to swamp wholesale, in ten days, the Eastern Commonwealths of the United States? Give us something more sensible—or don't talk!

There is a *natural* cause for influenza wherever people are housed. Especially when reinforced coincidently by fogs and mugginess of weather which interfere with chimney drafts and ventilation of homes, said mugginess of air also holding the poisons and smoke from all local combustion of fuels in thickened degree down to earth in the outdoor air; we, moreover, have fire-baked house air mixed with home-made fuel gases, overheated and dusty apartments, close crowd-air, adulterated moreover with burning lamps and gaslights—all combined to propagate special culmination of irritated and poisoned breathing channels. Combustion gases mixed with the breathing-air dry and smart the nostrils as fresh, pure air never does. Sitting by red-hot stoves or grates of glowing coals will induce pneumonic gripe with more celerity and certainty than exposures to rain or snow can possibly develop. Let us reason it out. The moisture of town fogs precipitates and blankets about the people everything gaseous from chimneys and sewers. The dense fogs of London cause so much influenza that the disease is there dubbed "The Fogs." Under similar conditions of air in Australia influenza is called "Fog Fever." Turn to London, and London only illustrates many towns and cities in the United States. The smoke from London's chimneys and media of business, it is said, frequently for a month or more envelops that city like a dense cloud. Disease and death statistics of London are always high. Dr. Fothergill, of England, says: "The air of London is poisonous to the more delicate kinds of roses, which pine and die in it." Another author says of the air of London: "If ozone is the health-giving spark, certain it is none of it is to be found in London."

In the atmosphere ozone is chiefly generated by the action of the sunbeams on oxygen. Practically, ozone is oxygen of pure air condensed from three volumes to two volumes, and hence its delightful agency to refresh and purify. Air containing no ozone is impure, for the reason that pure air always includes ozone. The deoxidized, smoky air that often hovers over manufacturing towns and communities is deprived of its healthful ratio of ozone. Where fuels are freely burned indoors, ozone must be a stranger whenever liberal supply of fresh air is barred out. On the sunny side, or upper planes of fog and cloud, there may be ozone, but the dark, thick mists beneath contain none, especially when deoxidized by the carbonic oxide gases and smoke of burning fuels. The readers of the *MEDICAL TIMES* who follow the thought of these lines have no occasion to expect that they are listening to any theorizing speculation about the most prevalent cause of influenza and influenzoid complications. I present to them the ground floor of dominating facts that injuriously surround humanity—conditions that infest the respiratory function, the blood corpuscles and the nervous system as a trinity of natural results. We are not dangle around a vague conceit like the bacillus guess that perverts judgment and baffles cure. With my comprehension of the dominant local cause of influenza in the breathing environment of population, for twenty years I have treated my cases of influenza solely from the basis of a carbonic oxide gas poisoning in greater or lesser degree. In reasoning along this line of treatment, it would seem proper, even at some repetition, to revert to the rational bearings between natural physical cause and its effects, and common-sense means for prompt and successful relief. We are not dictating—we are studying the impress about us where we live and move and have our being.

We will not forget that in the varied conditions of influenza I include broadly the common acute disorders of the respiratory channels, from coryza and "common colds" to the ultimate lesions in what we have been taught to call pneumonia and pleurisy—and never forgetting to estimate the ratio of toxic damage that has resulted to the floating blood corpuscles. If we adjust a successful form of treatment to severest cases, we qualify ourselves for all modifications that apply to the various milder forms of influenza. The dominant cause of influenza is practically the same everywhere. When this special phase of systemic septicity is of pronounced type, then the diagnostic variations and pathological complications are naturally shaped by the *intensity and persistence of the damaging influence*—modified, of course, by the contingent state of constitutional integrity and resistance. Indoor dwellers, office workers, men in public life who inhale crowd-air and who travel weary trips in steam-cars in their rush of urgent engagements, are among those more readily and often fatally assailed. The dyspnoea of influenza is not the disease, but is anxious evidence of embarrassed oxygenation and oppressed heart power. "Heart failure" is so often written down, perhaps ignorantly, perhaps for convenience, as a diagnostic synonym for lung-starve and non-oxygenated blood. If the gaseous poison inhaled with the air has not been particularly profuse, the relief of liberal aeration may do half the cure. But if there has been much accumulative poison-

ing and death of blood corpuscles, the rapid waste and ashen hue of the patient at the climax will markedly attest how near the patient has been brought to the danger line of dissolution. Under these depressing circumstances, if the invasion of fuel gas from anthracite, coke, soft coal, coal oil, or burning gas in the breathing-air of the patient be allowed to continue unchecked—if special advantages for continuous oxygenation of the blood of the patient be not promptly and persistently afforded—if the suffocating heat of furnaces or heating stoves be not religiously abated—if every hygienic and nutritive medium of relief and support of strength be not brought into faithful service, then the most available of all means to avert death have been stupidly neglected. Medicines alone prove defective and disappointing. The case may go under from shock and sepsis and exhaustion before nature can win sufficient chance to overcome the wreck.

Here is a point that I would not fail to impress upon the memory of every one who is interested in the treatment of influenzoid illness. When we start fires in our houses for heating and domestic purposes, if we exclude a free supply of fresh air by closing the windows and doors, day and night, admixtures of combustion gases with the exhausted breathing-air are sure to follow. The process of drying out along the respiratory passages is as certain to also follow as that two from two leave nothing. Chilliness from non-oxidation and systemic depression is as natural as is hunger from lack of food. Physiologists teach that more than six-tenths of the constituents of the human body in health are water. Water is the medium for the circulation of nutriment to every part of the system, and for the removal of waste matters. Water or moisture is as necessary to the health of mankind as to the growth or life of vegetation. The respiratory passages to the lung cells are covered with mucous membrane which requires moisture for its protection. Healthy air always contains a relative ratio of moisture, and is breathed with relish and comfort. But when shops and dwellings are kept heated to such state of dryness that house plants dry out in a day and wither, that furniture cracks and falls apart, how can throats, lungs, brains, and nervous systems escape injury from such home-made blight? Hence, in all severe influenzoid disorders, it is my habit to turn off the drying-out process from heaters and stoves, and turn in the moistening process, from the best outdoor air that we can get by keeping windows regardfully opened. We can always preserve the heat of the body with blankets. We may throw a silk handkerchief over the patient's head if there is fear of a slight draft. A few years ago I was called to a young lady, and found her very ill with influenza. She was coddled up in a room so close and warm that the air was nearly irrespirable. I walked to the window and threw the sash up and down. In a minute she said: "Oh, what a comfort that is! It seems as refreshing as a drink of water!" What else was said? "Why, doctor, we feared she would take cold!" "Take cold?" I replied; "take cold, wrapped up there in bed, in a warm house? Suppose you smother her, for fear she take cold—would she live any longer that way?" I won the field for my patient. Another case: I attended a man, in his fifties, who had severe pneumonic grippe. With my methods of cool room and ventila-

tion, he pulled through; but afterwards had considerable chronic cough, though attending to his business. The family moved into a narrower street. Toward spring, the following year, this street was dug open along by this house because of leaking gas-main, and the stench pervaded the house. Mr. M. was taken very ill with chill and influenza of the deeper breathing channels. (I had the case thoroughly explained to me by his daughter afterwards.) An officious friend insisted that a "scientific" younger doctor be called—which was done. He found the patient in an unheated room. "This will never do," he insisted. "Take him down to the parlor, where that 'Baltimore heater' is, and start it going. Be sure you keep him warm!" The fire was lighted and the bed installed in the little parlor, an area of about ten by twelve feet, the foot of the bed less than a yard from the heater. "Don't let him take cold—keep him warm!" was the doctor's repeated injunction. Consequently the windows were practically sealed and the crevice beneath the door swaddled. Constant attention was bestowed on keeping up a good fire. The room became so oppressive and bad smelling that the family attendants had to take short shifts at waiting on the sufferer. He coughed, and moaned, and panted, and sweated, and tossed, and begged for some air; but the "doctor" had said: "Keep on giving him the medicine and keep him warm—it's all you can do for him!" The struggle lasted two days and nights—and he was dead. That I consider a case of medical murder!

I keep my cases of influenza as far as possible away from hot air registers and heating stoves. The body needs to be kept warm with ample blankets, but the air breathed must be comfortably cool, and free from dust and poisonous elements by day and by night. Vital depression must also be counteracted by use of plentiful nourishments, including refreshing fruits liberally indulged in. For while the poison and diseased matter are being eliminated, refreshing nutriment and healthy new material must be substituted for physical recuperation. I avoid every medicine that depresses; employ only those which purify and sustain. Pains, cough, nervous depression must be relieved; but I avoid all opiates, since they impair digestion and stupefy reparative functions. Small doses, two to three grains, of acetanilid, or phenacetine, with salicin or quinine, I usually employ for a few days, while pain and soreness are severe. Muriate of ammonia, acacia, syrup yerba santa or of wild cherry bark are my basic expectorants. A raw egg occasionally, tanged with salt, makes supporting expectorant when cough and prostration are wearing. Benzoate of soda and salicin, in capsules, help to clear the field and hold the fort. Ten grain doses of potass. brom. in liq. potass. citrat. and syr. of lemon help, at the outset, to calm the brain and nervous system, loosen the tension of fever, and relieve the oppressed kidneys. Through all, I have implicit faith in the values of infusion of unground flaxseed, made rich but not thick, moderately sugared and drank cold, as a soothing demulcent that aids respiratory tissues and the kidneys. Only a few people seem to know how to prepare an acceptable pitcher of remediable flaxseed infusion. They think they should boil it. It should never be boiled. Boiling water poured upon the seeds is all the heat it will ever need. Usually two ounces of plump, unground flaxseed, steeped in a short quart of boiling

water in a pitcher, stood upon the table while cooling, stirred occasionally with a spoon, will be in readiness for use in twenty minutes. Sweeten, strain at will, drink freely when there is thirst, to relieve dry or smarting throat, harsh cough, stickiness of scant phlegm, and burdened kidneys—a grand remedy, bland and nourishing, perfectly safe under all circumstances—superior to most drugs in all forms of influenza.

Would any one like to have a set prescription? Then here is one of my favorites for pains in the head and back, soreness of muscles, nerve tension and general discomfort: Acetanilid, one scruple; salicin, one scruple; salol, one scruple; sod. salicyl., one scruple; benzoate of soda, two scruples. Mix: fill twenty-four capsules cupped dry. Dose, one capsule every hour for six doses; then every two hours until general distress abates. A wineglass of hot milk or of flaxseed infusion to wash down each dose. As soon as the vehemence of the attack abates, the medicine to be discontinued. I push no drugs beyond absolute necessity for use, but rely on nutrition and air for results. Rochelle is my favorite to open bowels freely for removal of intestinal debris. For throat, gargles of boracic acid, sod. salicyl. and bismuth sub nit. in varied combinations. For smarting tenderness of nostrils, snuff warm water occasionally. As the secretions of the mouth frequently become offensive, and the tongue dries if the patient breathe through the mouth, I insist on the freest use of water as a mouth wash before swallowing any foul secretions, or taking food or drink. The suspended digestive process needs coaxing into action. Any relish that can be suggested will prove of advantage. Gelatin preparations flavored with oranges, raw or stewed tomato, baked potato, soups, broths, oysters raw or stew, or rare-fried, fresh fish, fried squabs, buttered toast with rare-fried egg upon it and washed down with a delicious cup of cocoa. Nobody in this world deserve the choice of everything nutritious so much as do the sick who are striving between the chances of life and the straits of death. Too many people, because they are ill, are starved to death! In severe cases, sweating will often be profuse. If excessive, to the extent of increased prostration, it may be obviated by the cooling effect of increased supply of fresh air. As often as garments next the skin become saturated with perspiration, dead matters exuded from the skin, such garments should be removed from the body, and fresh substituted. The idea of allowing sweated garments to dry upon sick bodies is only adding luck to the chances that a shroud will come the sooner. In prostrated cases, in the cool room, this change of sweated for dry clothing may be safely done by adroit use of a blanket to tent over the patient during the process. Right here we are confronted by another very important necessity. The profuse sweating has released a copious amount of exuded dead material through the skin. We must relieve the patient from the oppression of this scum. How will we do it without danger? This way: Underneath a blanket, sponge the body thoroughly with alcohol, from neck to heels, and no sense of chill can follow; meanwhile the cleansing will be far better than if attempted with soap and water. What then? Enough alcohol stimulant will be absorbed to dispose a comfortable and refreshing hour of slumber. Alcohol applied upon the skin in severe influenza returns much happier results than when introduced into

the stomach. Whiskey and wine I avoid till after the patient is able to be out of bed. I won't abide any benumbing of symptoms and sensation with intoxicants while a danger line is in sight. I would not beguile the situation with any stupefaction from whiskey in the stomach. I would rather feed than to drug for reconstructive purposes. The values of a restored natural digestion are supreme. I may be asked why I prefer to use salicin as a tonic instead of quinine? Well, our population have been habitually quinned so long that its initial values are lost by systemic surfeit. Quinine affects the head and hearing unfavorably, thus proving its toxic capacity. Salicin is a fine substitute, more genial in pain, more soothing to brain and nerves. Compared as germicides? Fudge! I never give "germs" any consideration in influenza, or any other expression of disease. Everything that makes for health is a radical "germicide"—a good dinner one of the best! There has been much discussion about the values of acetanilid. It is one of my standard remedies, have used it for twenty years, but always in really moderate dose, and never without a tonic proportion of salicin to guard against depression. One grain of salicin to two grains of acetanilid makes a very satisfactory proportion. The systems of modern population need bracing 'n every form of illness—even when an analgesic febrifuge is indicated. Large doses of drugs overwhelm the system with foreign matters, embarrass the digestive functions, and cloy the normal avenues to cure.

In croupous forms of influenza, sprays and other specialties are called for. I have had good results from terebinthine inhalations. How? Moisten a patch of muslin with turpentine and suspend it near the crib of the patient, where the fresh air inhaled may be permeated with the oil of the pine. Again, for the purpose of throwing medicinal effect into the air respired by the croupous patient, I have caused the vapor of tar water to permeate the room—and again the vapor of lime water—always believing that medicated moisture inhaled was more remedial under such circumstances than a dry and possibly dusty drift from the heater. I now recall three deaths from croup in forty years, but two of these occurred before I so clearly comprehended the home-made cause of croup. Also, in those earlier days, it was the vogue to administer emetics to relieve croup. I expect that I then followed that mistaken conception, and that my emetics did their share to complete the physical exhaustion and hasten death. Since then I have seen very distressing cases of croup survive, and without intubation, but no prostrating emetics were resorted to. In all forms of influenza I abstemiously avoid the employment of any sickening remedy. I would avoid nausea as I would avoid the falling of the bridge before I had successfully crossed upon its support. Let me preserve all available aids of the stomach to readjust disordered conditions of the system. In the violent cough of the usual forms of influenza I zealously shun the old-fashioned syrups of ipecac and of squills as I would shun harboring a smuggler in the chambers of a home. The great and winning card in the cure of influenza is revealed in reoxidation of the blood and intra-organic tissues; antiseptic arrest of cell disintegration and decay; reduction of pains without benumbing the sensibility or stupefying the reparative functions; fortifying the energies with tonics and nutrition; assisting nature's strug-

gling energies to cast off from the blood and tissues septic matter—with which will also be eliminated any bacterian products dependent on diseased or dead pabulum for their existence in the case. To counteract exhaustion, all liability to fuel gas must be switched off from the patient's room. Lifeless warm air can do no good. If there is a gas stove in the room, or coal oil stove, or coal oil lamp, I promptly remove them, in order that the patient shall endure no further risk to the breathing channels. I prefer no heat rather than stifling air. Gas fixtures are examined to ascertain if any gas leakage is in progress to defeat recovery. To better promote evenness of body temperature besides the blankets for covering, it is my habit to have a blanket also underneath the patient to prevent the mattress from drawing away the warmth of the body in that direction—stealing, unrecognized, needful vitality.

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THE MORPHINE AND OTHER DRUG HABITS.

BY WILLIAM F. WAUGH, M.D., CHICAGO, ILL.

In the *Medical Times* for January my attention was attracted by an article on Morphinomania, by Dr. J. Howe Adams. After a very interesting resume historic, he proceeds to describe the principal methods of reduction and treatment. It is to be regretted that Dr. Adams has here confined himself to the older and now obsolescent systems. Recent studies of these habits on this side of the ocean have totally changed our conceptions of the pathology of the morphine habitue's condition, and the treatment based on the newer ideas has likewise been revolutionized. Possibly your readers may be interested in hearing of this, and contrasting it with the methods of Levinstein and Erlenmeyer.

A primary effect of a single dose of morphine is to lock up toxins in the cells, withdrawing them from the blood. This is witnessed in the familiar cure—temporary it is true—of toxicemic migraine by a hypodermic of morphine. The elimination of toxins is checked but, the blood being cleared, relief follows. Unless means are taken to rapidly stimulate excretion this is followed by a worse headache, as occurs after breaking up that acute toxemia usually denominated a "cold," by a dose of opiate.

The effects of a single dose are increased and the locking up of toxins prolonged by a succession of doses, and here we have the habit. Just as soon as the patient abstains from the drug long enough for the cells to commence throwing off the toxins into the blood, the patient begins to experience what are known as "withdrawal symptoms." These vary, as the whole circulation being entoxined, the effects of the poison are felt at the points of lowest vital resistance, naturally the emunctories chiefly showing irritation, as the toxins are cast off through them. Hence we have manifold irritations and paresthesiæ of the skin, or of any of the mucous membranes. Obviously, the quickest and surest relief comes from a new dose of opiate, which stops this elimination, and as this can be but evanescent, the continuous imbibition of the drug becomes a necessity.

This fact fully comprehended, we are prepared to treat the case intelligently. We recognize that his

sufferings are real, and not imaginary or necessarily autosuggestive. In fact, if we are close observers we will find a distinct and comprehensive reason existing for every complaint he may make.

We commence by stopping at once and for good the habit drug. Give the patient a warm bath, put him to bed, and administer a grain of pure emetine in tablets, swallowed whole, without water, that they may dissolve so gradually that absorption will keep pace and nausea will not be experienced. A sound sleep usually ensues, on awaking from which the patient commences taking a mild non-irritant effervescent saline laxative, in medium doses repeated every two hours. Frequently the always present retained fecal masses are so dense that a few enemas of warm water with soda are advisable, to start defecation. No matter how regular the bowels have been there is always this accumulation to get rid of. Sometimes patients can take such brisk cathartics as the U. S. P. compound cathartic pills, but where I have once regretted giving the milder remedies here suggested I have many times regretted employing those more irritant. The mucous membrane long sodden with decomposing feces readily falls into a state of septic inflammation. Better, *lente*.

Within two or three days the fecal masses will have been dislodged, and the results of the discontinuance of morphine inhibition will be manifested. Enormous quantities of bile will be poured out—gallons of it—and some of this regurgitating into the stomach will occasion vomiting so that we must take pains to keep the bowels acting freely. Great secretion of acid gastric juice may occur, necessitating gastric lavage or the free use of sodium bicarbonate. This elimination is not to be interfered with, not allowed to weaken the patient, and it may be desirable to give heart tonics like sparteine or digitalin if the heart condition indicates their advisability. The attentive physician foresees danger while still afar off, and prepares for it in good time—but not too soon or too strongly.

There is no objection to giving a single hypodermic of morphine gr. $\frac{1}{4}$ after the patient has been thirty hours without it, and this gives a blessed relief without in any way delaying the cure—but it should not be repeated except in rare and long standing cases. With this exception no opiate or any substitute for it is employed—not a grain of bromide.

The nerves, released from their long benumbing inhibition, display hypersensibility, and whatever the patient suffers will be more acutely felt than by a normal person. Patients assure me they can tell what members of the household are near, by the sense of smell; and that they can hear whispers at the end of the corridors. Recently I have met this condition by the use of a little solamine, gr. 1-12, every two to four hours, but as yet I am hardly prepared to decide as to its actual value. It certainly gives relief by lessening this abnormal sensibility. Moreover, it has a little effect in lessening the exaggerated sexual irritability so generally a feature of early convalescence, but for this we have an effective remedy in gelseminine, gr. 1.250 every half hour for three doses, beginning at 8 p. m.

The prominent indications are here, to maintain the strength while freely eliminating; and besides this we have to meet such secondary indications as may be presented. Thus, in a recent case the pulse showed a

slight abnormal tension, and the relief from a hypodermic of pilocarpine was so great that the patient insisted I had administered morphine. In another case the pulse was soft and tension low, and exactly similar relief followed the hypodermic injection of physostigmine. Here we have exactly similar results following the use of one remedy that relaxed tension and of another that increased tension. No better illustration could be given of the therapeutic principle, that there are no specifics for diseases but specified remedies for pathologic conditions. There is no remedy for the morphine habit, nor any easy routine method that will do away with the necessity of studying each case and fitting the proper remedies.

In two recent cases the patients continued to have difficulty in securing sleep. Acting on the belief that for this there existed a reason, the urine was examined and a decided contamination with bile was detected. These patients took boldine and dioscorein, and as the bile ceased to appear sleep returned, without hypnotics.

These illustrations may show what we are to look for, and how such cases should be studied and treated. The secret is evident—remove the causes of suffering and there will be none. Study each case as it is, and apply the remedies that case needs; but get rid of the false notions that have obscured what is really a very simple matter.

THE PHYSIOLOGICAL ACTION OF SOME DRUGS.

BY F. B. BRUBAKER, M.D.

HAVING proceeded then to prove that it is because of a nervous system that man is forever placed at the head of all kingdoms, that it is because of this very nervous system that he lives, and that it is to the effect thereon in all diseases of his body that he dies, let us see in how far these truths correlate with our highest known therapeutics and processes for the relief and cure of disease and disease conditions; for if on the one hand it is to its effect on the nervous system that man is gradually or quickly weighted down by diseases which sooner or later overpowers and conquers him, then surely on the other, if our highest therapeutics be not those which uplift the nervous centres or prevent this accumulative effect thereon, then is our system vain, or at least antagonistic; but we are pleased to note that here, too, our argument correlates with observed and noted facts, the truth of which we shall endeavor to make plain. Very lately whole systems have been written on procedures other than drug-giving, which have for their object the amelioration and cure of disease—the application of heat, the application of water, the application of metals, rest, suggestion, blood-letting, dietetics, etc.; many of them, as hydrotherapy, on which the profession has recently been enriched by a volume of some 800 pages, and all on the simple application of water to the body and its effect thereon. *What, let me ask my readers, is that effect?* Is it not primarily one regulating the flow of blood to the part, and consequently the degree of heat, by reason of its effect on the vaso-motor nerves? And where, let me ask, is this impression finally received? Is it not upon the nervous centres? So, also, dietetics, by suitable material in the way of food, water laden with proper food principles for the healthful metabolism of

protoplasm, is carried to the animal cell by reason of such healthfulness, gives strength and support to the general nervous tone of the body. So with blood-letting, so with rest, etc.; but it is not necessary to multiply instances in this direction, for it is the nervous system that ultimately needs and receives these impressions which accumulated, and may be in the direction of health and strength as well as toward disease and death. Are not the drugs of our *Materia Medica* which are considered best, first, those possessing an antiseptic quality, and thereby either destroying the micro organisms on the one hand, or else modifying their products and preventing their absorption and accumulation on the other, and, second, those whose effect is largely upon nervous structure, and therefore the vaso-motor nerves. Strychnia, bromides, alcohol, opium, belladonna, hyoscyamus, ergot, the coal-tar preparations, etc. I will enter into a consideration of but one drug as an illustration of this principle, viz., phosphorus, or the hypophosphites, and into the consideration of but two diseases as a necessary practical application of my theory, viz., diabetes mellitus and whooping cough. Now while it would be possible by a consideration of other and more important drugs in their direct effect on the nervous centre, and largely on the vaso-motor nerves, and thereby on the heat regulation of the body, by reason of the flow of blood to the part, while strychnia, for its direct effect on blood pressure would be decidedly more direct in its application, and while opium, by reason of its peculiar effect on nervous structure, has (in medicinal doses and laying aside all abuse of the drug) an admirable curative effect in many diseases, so much so that H. C. Wood, in his remarks on opium in the United States Dispensatory, on page 1002, says, in speaking of the employment of opium in cancer and other incurable affections in which the alleviation afforded by opium is of incalculable value: "We have numerous instances of painful diseases which are not only temporarily relieved but entirely cured by the remedy, and there is scarcely a complaint in the catalogue of human ailments in the treatment of which it is not occasionally useful and demanded for the relief of suffering which, if allowed to continue, might aggravate the disorder and protract, if not prevent, a cure." Whether it acts by reason of its control of the circulation, and thereby the regulation of heat, or whether it prevents the accumulation of disease products and the registration of these effects upon nervous structure, we do not know, but that it possesses a power having something to do with disease and being antagonistic thereto, there can be no doubt; that this relates to a basic principle or law there can likewise be no dispute, else how could it be of benefit in ALL diseased conditions?

But I have rather chosen phosphorus, because in phosphorus we have a direct effect upon nervous structure by reason (as we shall later see) of its being a food to the specialized cells entering into the structure of nervous tissue. Phosphorus accelerates the action of the heart, and the cutaneous circulation becomes more rapid, the body temperature rises somewhat, the mental activity and the muscular power increase, the menstrual flow grows more abundant, and the urine and sweat are excreted in larger quantity. Phosphorus in small quantity promotes constructive metamorphosis, increases the activity of the vegetative organs, and is a natural excitant of the functions of animal life. It enters largely into the formation of tissues, and is a necessary ele-

ment in the phosphorized fat which holds an important position in the composition of the cerebral matter. The action of phosphorus upon the system, therefore, is to stimulate the nervous function by supplying its natural motive power—the food which nature requires to feed nervous energy, to increase functional action generally, assimilation of food, hæmatosis, oxygenation, metabolism and elimination. The action of phosphorus, therefore, proves that the life of protoplasm, as we find it in animal tissue, is presided over direct by the nervous system, and that food having a natural predilection for nervous structure by reason of its strength-giving power thereto, strengthens all bodily structure likewise, so that by the administration of phosphorus we not only furnish strength to the nervous system, but likewise to all the bodily functions. Vegetable life does not require phosphorus, for the reason that the sun's rays do for the vegetable what the nervous system does for the animal, so that we find in phosphorus a direct application of the fact to the principle.

In the medulla oblongata, situated in the floor of the fourth ventricle, there is found a centre which presides over the normal functioning activity of the liver, which, by being irritated either by shock, fright, extreme mental emotions, or, as in the case of experiment by puncture, gives rise to what is known as glycosuria or diabetes. The influence of this irritation is propagated through certain branches of the sympathetic to the liver, and acting through the vaso-motor nerves, produces relaxation of its vessels, and, consequently, hyperæmia. This hyperæmia is an invariable condition of essential glycosuria. The increased calibre of the results permits the blood to pass through the liver without coming into that intimate relation with the hepatic cells which is necessary for a proper regulation of the glycosuric function. What is accomplished experimentally by the diabetic puncture is brought about by pathologic conditions involving irritation of the medulla or of its nervous connections with the liver. A persistent irritation of this kind would necessitate persistent glycosuria or diabetes. From a consideration of the causative relation to the nervous system of diabetes let us turn our attention to another disease—viz., whooping cough. This affection, according to the most recent research and by those most able to judge along this line, is caused by a distinctive micro-organism and is contagious. The etiology of the disease is indeed embraced in the simple word contagious, for this in our present state of knowledge of these conditions implies microbic origin. Age, time of year, meteorological conditions, etc., each have their distinct part in the etiology, yet the micro-organisms stand out prominently as the direct cause, without which no whooping cough is possible. The theory which gives the most satisfactory physiologic explanation of the paroxysmic symptoms, is that based on the results of Rosenthal's celebrated experiment. M. Jaccoud has very happily applied this experiment to the pathogeny of the paroxysm. The results of Rosenthal's experiment are well known. After experimental section of the pneumogastrio below the origin of the superior laryngeal nerve, centripetal excitations of the internal branch of the superior laryngeal nerve determines by reflex action on the bulb and the pneumogastric itself relaxation of the diaphragm. The almost complete occlusion of the glottis and the expiratory convulsion. One cannot

fail to be struck by the analogies which this physiologic experiment presents with the paroxysm of whooping cough, in which a high degree of glottic spasm and the expiratory spasms are produced. Indeed, there seems to be good ground for holding that the cause of the paroxysm is an irritation of the superior laryngeal nerve or of the tracheo-bronchial filaments of the pneumogastric nerve, the excitation of which, according to M. Jaccoud, would have the same effect. It must be admitted that the irritant cause is of a peculiar nature, for all of the catarrhs and of all the laryngeal affections, whooping cough alone gives rise to the special irritation which causes the paroxysm. The special irritant substance seems to be incontestably the mucus matter expectorated after the paroxysm. This mucus product, according to the bacteriologists, contains the micro-organisms which impart a specific character to whooping cough. Wherefore it is probable that it is this micro-organism which irritates the superior laryngeal nerve at the level of its terminations in the mucous membrane. The irritation is the work of the microbe itself or of the product which it secretes. The intermittence of the paroxysm is caused by the intermittence in the secretion of the mucus products. The latter are secreted slowly. They first accumulate in the small bronchial ramifications, then borne along by the movements of respiration they reach the level of the mucous membrane of the larynx, where their presence causes irritation in the terminations of the superior laryngeal nerve. At this moment, as in Rosenthal's experiment, the spasm of the glottis and the expiratory shocks are produced by reflex action. These phenomena depend upon the bulb and require absolute functional integrity in this nervous centre. Such integrity exists at the beginning of the paroxysm; it ceases when the asphyxia produced by the paroxysm has caused its effect to be felt. Under the influence of the asphyxia the blood reaching the bulb is not fitted to furnish the elements necessary to the normal performance of its functions. The action of the bulbar centres is then exhausted and the glottic and expiratory spasms undergo relaxation, and inspiration is therefore again possible. The sudden inspiration suspends the threatening asphyxia and permits the bulb to receive a supply of blood again endowed with sufficient reparative power. The spasms then reappear and the paroxysm again begins and ceases only with the definite termination of the spasmogenic irritation of the superior laryngeal nerve after the expulsion of the secreted mucus product. The respiratory filaments of the pneumogastric are not the only branches of the nerve on which are reflected the irritation of the superior laryngeal ramus. The gastric and cardiac filaments of the nerve participate in the reflex processes, as is shown by the vomiting spells and the acceleration of pulse, symptoms almost uniformly observed in the paroxysm. This conclusion is by those high in authority on whooping cough and is the accepted theory by all careful observers. *Hyperæmia is the dominant lesion in whooping cough, as of all infectious maladies.* And with this thought in our minds let us recapitulate our argument. First of all, it has been our pleasure to enter largely into the life properties of protoplasm. We have found it not to differ in any material respect, the vegetable from the animal kingdoms. We have found that protoplasm in all structures, devoid of a

nervous system, is dependent upon certain external conditions which must be constant and of regular degrees of intensity, that this intensity while it may vary within certain limits is always the same; that while one vegetable structure flourishes best under certain conditions, yet all are dependent upon certain invariable conditions of which heat is the most important. We have found that it is because animals and consequently man possesses a nervous system that a mule can be taken under ground into a coal mine with water and the sun's rays carried to him in the shape of food, these the same, only modified external conditions as the plant depends upon and must have for its life. That the nervous system of the animal attends to and by digestion liberates these stored up sun rays which by a beautiful mechanism of a heat regulating centre and by means of the vaso-motor nerves distributes this liberated heat to all parts of the animal's body by the blood. That so far in our consideration there is nothing of moment at variance in the two kingdoms, that protoplasm being the same in all material respects, its maintenance must be the same. We have found likewise that all disease, whether starting, as in our illustration of diabetes from causes acting from within a nervous centre, as is conclusively shown by the diabetic puncture which, passing by efferent nerve channels to an organ alters its function and oftentimes, if of sufficient intensity, or, acting in milder intensity, but for a longer period, thereby by an accumulative effect on the nervous system producing death. Or whether produced by a micro-organism from without and passing along efferent nerve channels to a centre, *in each case and always, disease to begin at all must do so by local manifestation.* That laying aside functional disease with which this essay is not so much concerned and passing at once to organic disease, we find that for its inception and progress it must not only begin by local manifestation, but that by reason of this very manifestation the vaso-motor nerves are made to receive this irritant impression which may amount to an inflammation or not, but being registered on the vaso-motor nerves from either cause, constitutes its first step, this impression resulting in an altered blood supply to the part or organ being either in the direction of too much blood or hyperæmia, or of too little blood or anæmia. In each case the argument remains, that therefore all disease by reason of these conditions is primarily a disturbance of the heat regulation of the body; that if no other evidence were obtainable on this subject the fact that branches from the great sympathetic nervous system accompany the blood vessels to all parts of the body whereby an immediate and far-reaching sympathy is established to all parts and especially to the great central vital organs, liver, lungs, heart, etc., must be considered as very significant inasmuch as a heat change occurring anywhere within the economy would be at once felt and its effect registered on all parts which upon the organs mentioned and many others would result in disturbance.

That the processes or the phenomena of inflammation is always the same, and that it is only by specialization of cells that it differs in result; that all the early phenomena of inflammation are vascular; that injury of vessels always produces it; that injury of tissues (protoplasm) alone does not, and that this

proves what Sir Joseph Lister said in 1850—viz., that the essential lesion of inflammation was a change in the vessel wall resulting from injury which increased the friction naturally offered to the flow of blood and was a *first step towards death.* That according to Cohnheim there is no structural alteration of the vessel, which shows conclusively that the effect must be upon the vaso-motor nerves, for how else could an inflammation kill if its effect is *not* upon the tissues (protoplasm), *not* upon the vessel, *not* upon any other structure, it *must* be upon the vaso-motor nerves. That observation and experience has proven that the tissues (protoplasm) does not die when the body, as a whole, does. The life of protoplasm is dependent on certain unalterable conditions with which we are familiar and these being present the tissues (even of man), do not and are not dead when the man is. The nervous system is the highest structure to which organic evolution has given birth, and it is this that has died and is dead.

That it is upon the nervous system that the products (that peculiar something) which probably differs for each disease is received, that disease always starts by a local manifestation which is irritant and produces injury which increases friction to the passage of blood. That this is the destructive life-work of micro-organisms which by their arrest at a given point (for when in motion they can do no harm) sets up this very irritation which oftentimes causes inflammation and by whose action or by whose elaborated products which, by acting on the nervous system, produce death. So that whether in disease produced from without, as in whooping cough and other contagious or infectious diseases, we find our best treatment to be antiseptics, which by their destructive action on micro-organisms or other products, prevent their absorption into the blood or their multiplication when absorbed, and consequently their action on the nervous system or whether in disease originating within the body, as diabetes, we find our best treatment to consist of opium or its alkaloids, it matters not, for in each case it is its effect upon the nervous system that produces death.

MODERN METHODS IN KIDNEY AND BLADDER TROUBLES.

BY M. SHELLBERG, M.D.

DONNE'S test for pus consisted in the addition of potassium hydrate to the urine; the pus cells swell up and assume a glassy, translucent, colloid appearance. If the solution is added drop by drop and after the addition of each drop the urine is thoroughly shaken up, the air bubbles remain suspended in the solution or come to the top very slowly. Muller says the potassium hydrate must be added very slowly, drop by drop, as an excess will dissolve the mucus. It must be shaken at once, as the phenomenon disappears very quickly. In alkaline urine the absence of the test is not proof against the presence of pus, but in acid urine a negative result is certain proof of the absence of any considerable quantity of pus. The test is especially useful when a microscope is not available.

In the prolapse of the urethral mucous membrane in the female, Voillemin attributes the condition to unusual laxity of the sub-mucous connective tissue; the

mucous membrane slides downwards till it appears at the meatus as a more or less circular pad. The condition is met with in children of two to twelve years, and in women of fifty to seventy-five; the predisposing causes being frequent child-bearing, senile involution, and other causes which lead to weakening of the tissues. The most common exciting cause is straining in coughing, defæcation, and micturition. Vulvovaginitis, urethritis, and injury seem also to have some influence in causing this disease. The first symptom is dysuria, and a little red projection at the posterior edge of the meatus is then detected; sometimes a second lies along the anterior edge, and later a complete circle of mucosa comes down. Then there is pain on micturition, on walking, and on connection. Reduction of the prolapse is often effective if a compress be applied and the patient kept at rest, while astringent lotions may prove beneficial; cauterization is less satisfactory, and ligature is not to be considered. The thermo—or galvano—cautery may be used for the removal of the mass, but excision, with scissors, followed by suture of the edges of the mucous membrane to the border of the meatus, is the finest procedure for the permanent cure of a large prolapse.

Considering remote results of structural lesions in urethro-stenosis, Harrison examined during life and after death the following varieties of wounds: (1) Lacerated or contused wounds, such as follow methods of divulsion; (2) incised wounds from within, as illustrated by internal urethrotomy; and, (3) incised wounds from without, as in external urethrotomy or perineal section. He came to the following conclusions: (1) That in periurethral strictures of the deep urethra the effects of divulsion may be limited to rupturing the dense stricture bands in the sub-mucosa of the urethra, while the mucous membrane itself escapes any serious injury or laceration, and is merely restored by stretching to its original dimensions. Here a permanent cure may result. If the mucous membrane is the seat of stricture it is necessarily torn or lacerated, and the operation is liable to be followed by a stricture of the most recurrent and contractile form. (2) That where the entire thickness of a stricture can be included within an incision of moderate dimensions made by an internal urethrotome, the normal calibre of the urethra may be completely and permanently restored. The absence of recurrence is not necessarily dependent on the use of a bougie, though this should always be advised as a precautionary measure. (3) That in multiple strictures or strictures of the deep urethra of considerable dimensions, either in length or thickness, the tendency to re-contraction after internal urethrotomy is frequent. (4) That the liability to the poisonous effects which unprotected and confined urine is capable of exercising, both on the body generally and on the tissues in contact with it, is greatly diminished where drainage and irrigation render these conditions of the urine unlikely. (5) That there is direct evidence to show that the tendency to re-contraction and recurrence of stricture after internal urethrotomy is largely diminished by the concurrent employment of systematic and efficient urine and wound drainage, such as the combination of external urethrotomy or perineal section affords. In the Bradshaw lecture for 1901, Garrod dealt with those urinary pigments which he considers to be present in normal urine, viz.: urochrome, urobilin, hæmatoporphyrin, and uroerythrin. Of these, urochrome is the most abundant, and to it the familiar yellow color of normal urine is probably entirely

due, while urobilin occurs in very small amounts, generally in the form of its chromogen, and has no influence upon the color; but in many morbid conditions its quantity is greatly increased and it is present to a large extent as formed pigment. Hæmatoporphyrin is present only in traces in normal urine, but often in larger quantities in disease, although very seldom in sufficient abundance to have any effect upon the color. Uroerythrin is not strictly a normal urinary constituent, but appears in small amounts as the result of very slight deviations from health. It is chiefly conspicuous as the coloring matter of the common pink urate sediment. Urobilin has attracted more attention than the other members of the group, and has given rise to a literature which far exceeds in bulk that of all the other urinary pigments together; various theories to account for its origin have been maintained. It is formed in the intestines from bile pigment under the influence of bacterial activity, and is absorbed from the intestine and excreted in part in the urine, while part seems again to pass by way of the liver into the bile. The formation of urobilin or its chromogen can be shown to depend upon the presence of bile in the intestine, of bacteria, and of sufficient time to allow bacterial activity to develop; where the access of bile to the intestine is cut off, as in obstruction of the common duct, or where the bile is hurried rapidly through the intestine, as in diarrhoea, or where bacteria are absent, as in the intestine of the new-born infant, the formation of urobilin is prevented. Hæmatoporphyrin is present in minute traces in normal urine, and has been found by MacMunn in the pigments of certain invertebrata, some of which have no hæmoglobin in their blood. It is found in larger quantities in cases of poisoning by sulphonal, where the urine has a deep, port wine color; but, according to the lecturer, this color is due rather to other pigments than to hæmatoporphyrin. He believes that this substance has hæmoglobin, and possibly the histohæmatins of MacMunn, for its parents, and is isomeric with bilirubin. He does not attribute much importance to food as a possible source of this pigment, nor do his investigations suggest that there is much necessary connection between excessive hæmolytic and excess of hæmatoporphyrin. He gives details of blood counts and hæmoglobin estimates in several cases of hæmatoporphyrinuria due to sulphonal, in which there was no evidence of marked hæmolytic. Traces of hæmatoporphyrin are found in the intestine, but it is probable that it is formed in the liver, as there seems to be some connection between degeneration of the liver substance and increase of this pigment. Its relation to lead poisoning is also probably due to the action of lead upon the liver. Urochrome is a pigment, as to the relations of which little is known. The lecturer disputed the view of Thudichum that urobilin is a decomposition product of urochrome; he believes that the formation of urochrome is quite independent of urobilin, and, although it is probably a derivative of hæmoglobin, there is as yet no evidence to show how or where it is formed. This pigment has no characteristic spectrum, and the want of a satisfactory method for its estimation makes it difficult to form even a rough notion of the quantity present in morbid urines, in which the color is often masked by other pigments. Uroerythrin is in even a still more unsatisfactory position as to our knowledge of its origin and relations, although its power of imparting color to urate sediments caused it to be one of the first urinary pigments to attract attention; it is prob-

ably not derived from hæmoglobin, nor can it be obtained from the fæces. It is increased in the urine of patients suffering from the hepatic disease, such as cirrhosis, carcinoma, and passive congestion. It is excreted in large quantities in certain febrile disorders, *e. g.*, such as acute rheumatism, pneumonia, and also in gout, while its amount in cases of liver disease is greatly diminished when the patient is put upon milk diet. The origin of oxalic acid in the body still remains an obscure problem. Lommel found that when oxalic acid is given by the mouth, only a part of it can be recovered from the urine and fæces; it is therefore probably destroyed in the intestine through the action of bacteria, but the oxalic acid of the urine is only in part formed from the oxalic acid of food. Food rich in nuclein and gelatin increases the excretion of oxalic acid, but this does not stand in direct relation with the destruction of albumen. Hæmoglobinuria is due to the breaking down of the blood corpuscles in the blood, in consequence of the hæmolytic action of some poison which has passed into the circulation, but hæmoglobin may be present in the urine from the normal hæmolytic action of this fluid becoming exaggerated. Normal urine is hæmolytic, and ultimately destroys the blood corpuscles, causing them to shed their hæmoglobin and to appear as colorless discs, but the process is a slow one, and the colorless discs may be seen at least for some days. It is characteristic of hæmoglobinuria that no discs can be seen, and that the blood corpuscles have been completely destroyed. In some cases of nephritis the urine may possess this hæmolytic power so as to be capable of destroying, not only the blood corpuscles of the individual affected, but those of healthy persons. Such a case was reported by Phaniez, and another by Tuffier and Molian. In the latter case, which was one of acute nephritis following a burn, the hæmolytic power of the urine disappeared when heated to 120° C., but reappeared with exposure to fresh air. In this case, too, it was proved that there was no free hæmoglobin in the blood serum.

A urine which gives no indication of indican when treated with a solution of calcium chloride in hydrochloric acid in the cold, will give a marked reaction if the urine be boiled after the addition of the reagent. Reale observed that while the urine is boiling there is at first a separation of blue indican, but which shortly changes to a pink color, and sometimes is even transformed into a colorless substance. He thinks these facts suggest the presence of an indican forming substance in the urine which is very unstable. The most obvious suggestion is a glycuronic combination (indoxyl-glycuronic acid), which is rendered probable by the fact that these urines ordinarily belong to lithæmic subjects, and react more or less to the reduction test. This hypothesis was demonstrated to be true by the author's researches, which proved the presence in such urines of a substance which could be precipitated by barium chloride, and which proved on analysis to be a barium salt of glycuronic acid.

In an article on the Severe Forms of Hæmaturia Occurring in the Prostatic Enlargement of Elderly Men, with Their Treatment, by Professor Bazy, he states that patients with hypertrophy of the prostate gland are exposed to hæmaturia; the loss of blood occurring in such instances can range through an entire scale, beginning with a mere red or brownish coloration of the urine up to a serious hemorrhage that will fill the bladder with clots and make the situation one of serious danger. In

the majority of cases a hemorrhage of this origin is of little importance and will cease in a short time of its own accord; in some cases, active treatment, such as will be outlined later, has to be employed. Finally, in a few cases, and this is a fact not very generally known, a hemorrhage from a hypertrophied prostate necessitates suprapubic cystotomy as a hæmostatic means. Bazy relates a curious case in which he was anxious to avoid an operation on account of a peculiarity in the case. The patient, a man of eighty-five, an old sufferer from hypertrophy of the prostate, had as well a calculus lying in a pocket in one side of the bladder, as he had ascertained at a previous operation of lithotripsy performed some time earlier. He was seized one day with violent hæmaturia, which filled his bladder with clots and produced distention of that cavity with intense pain. In spite of this condition, and although he had this encapsulated calculus, Bazy decided to wait before performing suprapubic cystotomy, feeling that, although he had stood lithotripsy successfully a short while before, he was hardly in a condition to undergo cystotomy, however clearly such an operation might be indicated. Fortunately, the hemorrhage ceased, and the patient's general condition soon became normal again. Still, after a certain lapse of time he began to suffer afresh, as could have been foreseen, and a surgeon, who knew about the calculus, performed cystotomy, from which the patient died.

Bazy called attention to the accuracy of the opinion of the greater severity of the hypogastric section in old men as compared with lithotripsy. Since that period Bazy saw other cases of serious hemorrhage in prostatic patients. Two of these cases were particularly interesting: Both were men over sixty years of age and came to notice almost simultaneously. The first one, General B., is a very vigorous and active man, who, although in retirement, is still in condition to undergo quite fatiguing exercise. He was obliged to use the catheter, but this did not prevent him from fulfilling his duties perfectly well and from keeping in excellent health. Two years ago he was suddenly seized after fatigue, although not immediately after, with violent hæmaturia with the emission of pure blood, which lasted for two days and appeared to yield to an injection of antipyrin. Two months ago he had had an abundant hæmaturia for two days, and for the last five hours complete retention of urine and inability to pass a catheter; this hæmaturia had followed the application to the chest of a blister advised by a physician who had been notified of the condition of the patient's bladder, but who, in spite of this notice, had decided to use a blister. Finally succeeded in passing a stiff catheter, No. 22, through which were eliminated a number of clots, to the patient's great relief, and the catheter was left in position. Bazy advised hot washings, first of antipyrin and then of tannin, three times in twenty-four hours. The following day the hemorrhage, which had appeared to have subsided, began again as violently as ever, and the bladder became distended. He was forced to aspirate the clots, and had great difficulty in doing so; then, under the influence of hot injections, the hemorrhage gradually diminished, and ceased altogether in five days' time. The patient had lost color considerably, but not enough to give us any uneasiness as to his life; at one time Bazy thought of making hypodermic injections of artificial serum, but this idea was finally abandoned. Since that attack the patient has been in excellent health; there has been no

recurrence of the bleeding, and the urine, which had been offensive during the periods of retention, has now become almost normal.

The other case was that of a patient of sixty-five, on whom a surgeon had made a puncture of the bladder for retention of urine of prostatic origin, but as the retention persisted and the catheter could not be passed, voluntary micturition was finally re-established, and he only saw the patient at long intervals. Four years ago he had another serious recurrence of retention; the only instrument with which he succeeded in reaching the bladder was a metallic catheter, the different staffs failing completely. There was on this occasion quite a violent attack of hæmaturia, but Bazy was finally able to put a stop to it. When this was over, he removed a small phosphatic calculus by lithotripsy. Since this date the patient has used a catheter from time to time; he is exposed occasionally, to use his own words, to retention of urine of physical origin. Later, he sent for his doctor because he was urinating blood in large quantities. For two days previously his urine had been slightly tinged, but as this had often occurred before he did not pay much attention to it; when, however, the hemorrhage rapidly increased he became alarmed, and with reason, as for a while the loss of blood was very serious. A catheter was placed in position, washed the bladder with water at 50° C., inject a solution of tannin, and aspirate to remove the clots. In this case, as in the former one, the attacks passed off without any appreciable sign of infection, in any case without rise of temperature. The catheter was left in place for two weeks. To-day the patient has completely recovered. After having been obliged to use the catheter whenever he wished to urinate, he now has to do so only once a day, and not every day, at that. He has an enormous hypertrophy of the prostate, and is obliged to use a very long catheter with a very long and marked angle. The catheter for extracting the fragments after lithotripsy is too short for him, and he could not use it in removing his clots. The previous patient had also a very large prostate, though not so large as in this instance.

Prostatic cancer also bleeds into the cavity of the bladder in some instances only. I saw not long ago a patient who was clearly suffering from a cancer of the prostate who had only had one hemorrhage, and that one exclusively vesical in appearance. He had passed blood, not at the beginning of micturition, but during the evacuation. Yet it is not rare to see initial hæmaturia, and even species of bloody ejaculations, in prostatic cancer, and no other form of bleeding at all. This kind of hemorrhage, whether abundant or small, can indicate prostatic neoplasm, especially when it occurs before any symptom of prostatism are present, or, at any rate, while such symptoms are very unimportant; this is particularly true when the hæmaturia is accompanied by retention of urine, so common in prostatic enlargement, but which can also occur in neoplasms, although less frequently. The diagnosis can be made in different ways, according to the conditions under which the hæmaturia occurs. I shall not consider the diagnosis with renal hemorrhage, although it is not always an easy one, because in most cases there are renal symptoms, while vesical symptoms are absent, and this is sufficient to put us on the right track. When the vesical or vesico-prostatic symptoms are clearly present, how shall we distinguish between a hemorrhage of vesical and one of prostatic origin. I shall also set aside the cases of

abundant vesical hæmaturia occurring when an overdistended bladder has been too abruptly emptied, and shall only consider hæmaturia occurring in patients who have used the catheter habitually for a long time, or else whose bladder practically empties itself spontaneously, making the catheter unnecessary—that is to say, hæmaturia occurring under the usual circumstances. It is in these circumstances that we have to make the diagnosis between the hemorrhage of a neoplasm and of an enlarged prostate. When the cystoscopic examination is practicable, which is only the case with temporary or intermittent loss of blood, the diagnosis is easy; but when this examination cannot be made, either on account of the hemorrhage, or because the urine is not clear and cannot be cleared, the diagnosis can often be made by bimanual palpation, one finger in the rectum, the other hand on the hypogastric region. When, with persistent hæmaturia rendering cystoscopic examination impossible, no tumor is felt by this means, we can only think (when there is a prostatic enlargement) of a simple papilloma, and a papilloma rarely causes a sufficiently abundant, persistent hæmaturia to render cystoscopic examination impossible, especially in its early stages, and even later on. At a more advanced period the case is different; but it is only when the papilloma has become transformed that the hemorrhage becomes serious and persistent. Consequently, the diagnosis is easy as in case of papilloma. It is usually an infiltrated neoplasm that causes this hemorrhage, especially cancer. In such cases the tumor by which they are characterized can be detected by bimanual palpation, and we ascertain that it is rather more lateral than in the middle line, and that it can generally be separated from the prostate, which is usually small, or of moderate size. In hemorrhage of prostatic origin the gland is voluminous; if a tumor can be felt in the bladder, it is in the middle line, cannot be distinguished from the prostate, and is not painful, as is usually the case with a vesical tumor. It is easier to disinfect the bladder of a prostatic patient than that of a patient with a neoplasm; it is seldom that the odor of urine that has been infected can be suppressed in cases of neoplasm, whereas this can easily be accomplished in a prostatic patient. In cases of insignificant or temporary hæmaturia, the diagnosis between vesical and prostatic origin has less interest. Still, even in such cases it is just as well to try to have an accurate diagnosis and to use the cystoscope. Too much precision cannot be sought for in getting an exact and early diagnosis in a bleeding bladder. The prognosis of prostatic hemorrhage varies with the amount of blood lost, the frequency of the hemorrhage, the patient's age and condition, etc. The treatment is sometimes very complicated, but in others it is a simple matter; at one time mere rest is sufficient to stop the bleeding, or a washing with hot water, or with a solution of antipyrin; in other cases a catheter has to be put in position to prevent the bladder from contracting, and it is then advisable to leave this catheter open in a urinal. It should, however, be known that in some cases an open catheter will not be tolerated, and that in such rare instances it will have to be plugged, and only opened every two or three hours. Care must be taken that it is very accurately placed; if it has a tendency to come out, or does come out, the bladder becomes distended, contracts, and will bleed afresh.

Through this catheter washings can be made with water at 50° C., for fifteen or twenty minutes, the liquid being injected as gently as possible. Sufficient tannin

should be tried, hot, one hundred to one hundred and twenty grammes (three and a half to four ounces) of a one or two per cent. solution. In some cases clots obstruct the catheter, while at the same time they distend the bladder. Short, quick squirts with the syringe may disintegrate these clots, but when this means does not succeed, a large metallic catheter with a moderate curve should be introduced, through which the clots can be evacuated either by the means just indicated or by aspiration. The best means of stopping a hemorrhage of the bladder is to prevent that organ from being distended. The bladder ceases to bleed, or only bleeds in great moderation, when it is at rest. Bazy was the first to observe this fact, and he demonstrated its accuracy in 1882, when he did the first operation for tumor of the bladder. In his own words: "I operated during a period of hæmaturia, which on the following day had stopped. It is true that I removed the neoplasm, but I had left in the bladder a wound that would have bled freely had the bladder not been at rest. This is one of the points that made a most vivid impression on me and on such of my colleagues as asked to see the sequelæ of the operation, which interested them a great deal on account of its novelty. When the bladder has been freed of the clots it contains it should be washed with a hot solution, boric or tannic, or merely with boiled water. It is an error to think that the bladder contains no more clots when no more come out by the catheter. In the case in which I operated, I found quite a large clot in the bottom of the bladder, although I had washed the vesical cavity vigorously before making my incision. When no operation is done, the urine, during the days that follow the evacuation, looks as though tinted by stale blood, and occasionally contains a brownish or chocolate-colored piece of old blood, although there is every reason for believing that the hemorrhage has come to an end. It may happen, nevertheless, that the hemorrhage cannot be stopped; the patient grows weak and takes fright. In such conditions no hesitation should be felt in advising an operation, to the hypogastric section, which, owing to the facility that it gives for inspection by sight of every portion of the vesical cavity, enables us to stop the loss of blood with certainty. In fact, the mere putting the bladder at rest is often enough, and the hemorrhage does not recur after the operation. The application of forceps, or plugging, seems to me rarely indicated. Finally, the general treatment of the patient should not be lost sight of. Personally, I prefer hypodermic injections of large doses, two hundred and fifty to five hundred grammes (from nine to eighteen ounces) of a seven-per-thousand solution of chloride of sodium, two or three times a day, to the administration of tonics and stimulants."

Divorce Legislation.—Last year a bill was introduced into the New York legislature, defining as bigamy, the remarriage of a divorced person forbidden to remarry by the courts. At present, this prohibition is really not much more than a formal reprimand, as the divorced person can marry in another state or country whose laws differ from our own and the second marriage, if legal where it is contracted, is recognized here. The query indeed presents itself whether such a statute as is proposed can hold in a matter of inter-state or international law.

This bill, however, though of very little real im-

portance in itself, is significant in calling attention to our local divorce laws and the urgent need of securing uniformity among our various sovereign states. The impression is becoming more widespread, that New York is as much too Puritanic in its divorce laws as North Dakota is too lax. It is a good general rule that no law should be above the general moral standard of the community, for the very simple reason that laws are made, not for the normal, ethical good citizen, but for the opposite class.

Our law is faulty, for practical purposes, in three respects. (1) It takes too literally and too narrowly, the sexual view of marriage. A man or woman may be intolerable as husband or wife, because of drunkenness, cruelty, extravagance, laziness, general disagreeableness, or because of lack of sexual nature, and may be disloyal in everything but the sexual act, but the law allows no freedom from such a partner. (2) Our courts recognize almost formally, an innocent and a guilty party. It has been said cynically and with considerable truth, that in a divorce suit, one should always suspect the innocent party. Often, a cold-blooded, unamiable, nagging "innocent" party has driven the guilty party to look elsewhere not simply for the sensual but for the social and intellectual companionship which are the foundation of the marriage relation. Often, too, the party that is more sinned against than sinning, voluntarily accepts the odium of being the guilty one for the sake of obtaining release, sometimes assuming this rôle by absolute perjury, sometimes deliberately committing some infidelity and placing the evidence at the disposal of the innocent party.

(3) Our courts assume to sever the bond of matrimony at one end only, cutting A loose from B but not B from A. The present bill aims to support this absurdity by law. As a matter of public policy, if only one party of a divorce suit should be free to remarry, it is the guilty one. When, as very often happens, the "innocent" party promptly corroborates the predictions of acquaintances, by marrying a certain tertium quid, it not only justifies a sneer at the very sharp definition of innocent and guilty parties, but it serves to excuse, in the popular opinion, the supposedly guilty party and to bring divorce restrictions and even the sacred institution of marriage, into disrepute. On the other hand, from the nature of the case, the truly guilty party might much more logically be compelled to marry the co-respondent than to be forbidden to marry at all. Such compulsion would be unwise and often is impossible, yet it is self evident that the guilty party, especially when a man, is in general, a safer and better member of society if allowed or encouraged to remarry, than if left with strong passions, in a state of immunity toward the commonly accepted obligation to marry the object of his affections.

A famous actor, it is stated, has left the stage in order to pursue the practice of medicine. We trust none of his whilom critics will ever consult him professionally. It would then perhaps be as that disreputable old hobo Diogenes observed to a poor and unsuccessful wrestler who had turned physician: "Courage, friend, thou shalt now throw those who have formerly thrown thee."

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A LIVE MEDICAL ISSUE—UNITY IN THE STATE MEDICAL EXAMINING BOARD.

WHEN, nearly a quarter of a century ago, it became apparent to the Medical Society of the State of New York that the agitation for a reform in medical education could not succeed with the Legislature unless the cooperation of sectarian physicians was secured, and that it would succeed, and succeed promptly, if the regular profession would sacrifice its dignity by consenting to such cooperation, the Society yielded to the vital practical necessity of raising educational standards. By so doing, the State legally recognized three distinct schools of medical practice: the allopathic, homœopathic, and eclectic. Owing to this action, and in protest against it, the State Association was formed. Last year, after much fighting—and, curiously enough, the hardest and bitterest fight was for peace and unity—the two factions of the regular profession were finally reunited.

Meantime, various agencies, and largely the fact that conditions, not theories, determine ultimate success in medical practice, had been a work to secure practical unity of scientific medical thought not only in the State but in the nation and, indeed, in the whole civilized world. Allopathy had never been a recognized law of practice, and the regular profession, which had never placed any exclusive method or theory of disease before its members as a creed, had even at the beginning of the agitation for educational reform learned that internal medication was only a part of therapeutics, and that it was not even possible to establish as authoritative any scheduled method of treatment for any disease. Even such homœopaths as still regarded the teachings of Hahnemann as a primary basis of treatment realized, with few exceptions, the relatively unimportant place of medicines and the great majority realized the value of scientific pharmacology as compared with the superficial empiricism of drug proving, with its opportunities for error. On the one hand, physicians of

the old school recognized the advantages of administering drugs so as to avoid toxic action, while homœopaths had learned, in the same school of experience, the necessity of giving drugs in sufficient dose to secure actual effects. Under whatever flag a drug made its appearance, if it gave evidence of being useful, physicians of all schools were willing to use it.

Eclecticism was, in name, merely an accentuation of the right—indeed, duty—of every physician to use whatever means of treatment seemed to him best. Whatever differences existed between eclecticism as a fundamental doctrine of the regular profession and eclecticism as a sectarian name, were hammered away by the knocks which preconceived ideas receive in the workshop of practice. As a matter of fact, eclecticism, as a school of medical theory, did not exist in New York, and the so-called eclectic school has consisted mainly of men who were eclectic as to the business conduct of practice.

To-day the need of a tripartite educational board has disappeared. For every department of medical science and art, excepting therapeutics, there is practical unity of opinion, for the satisfactory reason that medicine has now a foundation in well-established fact instead of speculation. Whatever differences of opinion exist as to facts, are quite as likely to manifest themselves in the same "school" of practice as across sectarian lines. Moreover, the futility of attempting to restrict the license to practice according to professional ethics has been definitely recognized. So long as a physician properly qualifies himself to practice and avoids criminality he can conduct the business of his practice according to any lines that he chooses. He can follow the niceties of the most intricate code of ethics and etiquette or he can adopt the most conspicuous means of advertising himself and his profession at his own sweet will.

But, if three schools of medical practice are recognized by the State, it is only a question of time when every other sect that can command public attention, will be represented. Osteopathy has come dangerously near securing recognition and Christian Science is swaying a considerable part of the former clientele of homœopathy. The interests of the community and of all physicians at present in practice demand that the advantages of the present educational standards shall not be lost by allowing all sorts of nondescript sects in medicine to practice.

At the same time, the fact should not be overlooked that we are contending for no special privileges and for no injustice to others. On the contrary, those who are knocking at the doors for recognition by the State licensure, are asking for the special privilege of entrance to practice without the thorough training in general and technical education which is at present demanded of all alike. Under existing conditions every physician may

use whatever method of therapeutics he pleases, and most do, daily, put into execution whatever of truth lies behind the various fallacies which are the cardinal tenets of the various exclusive schools of practice. That many do and will exercise this privilege unwisely is not denied, but it is impossible for the law to control the routine practice of its licentiates. All that can be done, within the limits of human wisdom, is to require a thorough grounding in medical science, a good general education presupposed, and trust that this basis will modify the extreme individual peculiarities of those who would like to enter the field without such a basis, for the sake of riding some particular hobby.

SCIENTIFIC TRUTH.

PROFESSOR OSLER'S addresses are always notable; that which he recently delivered before the Harveian Society on "The Growth of Truth" is especially so by reason of its engaging treatment of a subject in which the scientific mind must ever be vitally interested. Truth, declares this incisive thinker, grows like a living organism; it is evolved, and its evolution is gradual. Harvey, for example, was able to make his great discovery because he possessed the heritage of most patient and laborious endeavor bequeathed by generations of workers to those who, like him, were able to put such knowledge to use; indeed, some of his immediate predecessors had very closely approximated the result to which he arrived.

No doubt many of these scientific ancestors of Harvey had been held by their communities to have led fruitless lives and to have been "failures"; and had themselves closed their tired eyes upon the unappreciative world in the same disheartening belief. But they were not failures, such men, as Harvey must have gratefully felt, and as we know who have profited by their labors and his. They had been essential; they had contributed their fraction of truth to the total by means of which Harvey was able to perfect his immortal achievement. Without them we should never have heard of Harvey. In like manner "Sir William Perkin and the chemists made Koch possible; Pasteur gave the conditions which produced Lester."

Scientific truth is a most laborious growth; it is never a series of sudden leaps at knowledge, although it may seem oftentimes to have been so. It has had, it has in our day, and it will in the future, no doubt, have its barren and its fertile periods—when inferences have been hastily drawn from as yet unestablished principles, when unwarranted deductions have been made upon insufficient data, when mere speculation has taken the place of solid judgments, when theories have sprung rocket-like into view, have soared heavenward in blinding splendor only to be exploded most dismally

and to leave behind a disconcerting gloom.

Yet the retrospective mind has but little occasion to be discouraged. If science is to progress at all, its votary must have imagination and he must frame his hypothesis. Only he must frankly drop them when he finds them untenable; and he must be indifferent as to where they lead him, if only they lead him to the truth, as his finite mind is able, in all honesty and earnestness, to grasp the truth. And he must be fearless, as was Huxley. There were those who sought to crush him (they would certainly have destroyed utterly a lesser man) by setting up the Pentateuch as a barrier to his search after truth. But to him the truth was of greater moment than the page written presumably forty centuries ago; for him the world had got beyond the Mosaic dispensation; it had evolved some since Genesis.

Must the scientist abandon a cherished hypothesis as untenable; very well, then, let him do so the very instant he reaches that conclusion. It were truly dishonest to hold it a moment longer. Let him part with it without regret—plenty of others have done so before him. Thus did Horsley, as in Toronto some months ago when he related, in the most matter-of-fact way, how he and his laboratory colleague had worked up an idea during several years, but had rejected it as untenable and had without more ado constructed another hypothesis to fit new conditions which had arisen. Sajons, also, relates in the simplest way his labors of fourteen years concerning the Ductless Glands, "the first five of which were spent in fruitless grouping about." Let the scientist, in advancing upon his fresh hypothesis, retain what was of value in the old; he will no doubt find much of permanence in the residuum. Nor, if he fails to obtain his ambition, should he on that account consider himself a failure; he has at least put into the ladder of progress another round most helpful to those coming after him. Only let us, scientists and laymen alike, who are profiting by his altruistic works, remember him with gratitude as deep as the human heart can feel.

THE STATUS OF PHTHISIS TO-DAY.

MEDICAL tides flow and ebb; the winds change from time to time; "fads and fancies" creep even into medicine and the advance made has not been in straight lines but from tack to tack like the sailing vessel going against a head wind. Particularly is this true in phthisis. What phase of thought remains unexpended, what theory or idea has not been tried in this condition? as Musser said recently before the Philadelphia Tuberculosis Exhibition.

Prior to the coming of Koch, it was drugs and foods that had their passing hour. There was the cod liver

oil period, the phosphorus period, the hypophosphite period, the arsenic, the iron, the digitalis, the phenol, the quinin, the creosote and the coal tar periods. Those who are not among the very old in the profession will remember the psychic inflation of the sulphuretted hydrogen gas treatment which ballooned itself around the world, until by virtue of its own expansion, it went up into the air, a method of unsavory memory. Compressed air and vacuum apparatus of all kinds have been limboed to the garret of innocuous desuetude and save perhaps for pocket vacation are chiefly useful only as relics of the will-o'-the-wisp period of pulmonary therapeutics.

For many decades *climate* and *clime* were the end all of all tuberculosis management in the selection of which the profession tended, now here, now there, in accordance with the energies of the devotees of the respective region. Ever since the bacteriologic era in tuberculosis there has been much chasing after false gods. Who does not recall the great excitement a score of years since brought about by Koch himself in his premature statements as to the value of tuberculin? It was not alone the profession who suffered. The confidence that is lost by the explosion of such premature fancies is harmful, but it is as naught compared to the distress, the blasting of hope, the throttling of courage which befalls the poor sufferer from his disease.

Musser decries the present tendency to extol climate and sanatoria as infallible cure-alls in this condition. He believes that the sanatorium treatment has been placed on too high a pedestal by many of its ardent advocates. Baldwin, taking up another phase of this question, has studied the influence of a tuberculosis sanatorium on the value of surrounding property. He believes that by education of the public any prejudice against such institutions can be removed; he cites as individual illustrations, in a recent issue of the *Journal of the American Medical Association*, the Cullis Consumptives' Home near Boston, the Brooklyn Home for Consumptives and St. Joseph's Hospital for Consumptives in New York City, where land values in the immediate vicinity have increased from fifty to four hundred per cent. In the Adirondacks, sanatoria have increased the value of property; thus near the Adirondack Cottage Sanatorium, property now brings five cents per foot. The Loomis Sanatorium has increased the value of property in Liberty, N. Y., so that it has increased its population by twenty-four hundred in five years, while the rest of the county has added only one hundred and twenty-four to its population.

Twenty years ago there was indifference to the establishment of an institution of this sort in any neighborhood. A partial education has made the public hypersensitive and still remain so. The Goodsell-Bedell bill was passed by the New York State Legisla-

ture to prevent the placing of sanatoria through the State to please a railroad magnate who owned a fine estate in Orange County which was threatened by the possibility of the erection of sanatoria for the city of New York. It is stated that this magnate did not fear consumption, but he did not want to see feeble folk with hollow cheeks along the roadside as he passed in his automobile.

Education is growing, however, and the superstitious dread of these institutions will fade away to join the dread of vaccination and antitoxin.

Recently there has come from the West a storm of protest against sending tuberculosis cases to those sunny climes. Thus Cobb and Ziegel, in the *New York Medical Journal*, have independently written strongly on this subject. Ziegel says:

As regards the climatic treatment of pulmonary tuberculosis in general, it may be said that few problems in the whole range of practical therapeutics present to the practitioner greater difficulties than advice to consumptives as to change of climate. This complexity arises to a great extent from the existence of so many considerations extraneous to the physical status of the patient and to the probability of cure or improvement under favorable climatic conditions. Before any proper advice in such a matter is possible, we must needs be confronted by a whole host of questions such as the following: Will the patient's financial and physical conditions permit of a change at all? Assuming that he has plenty of means and is strong enough to stand the journey, will the lack of care, comforts, and conveniences offered at home by relatives and friends be outweighed by the possible climatic benefits of migration to a distant land? Are the mental peculiarities and temperament of the patient such that individual evil influences of nostalgia, imprudence or unwisdom will overbalance the possible physical improvement? Granted that a change of climate is practicable and advisable, which is more likely to be necessary, a temporary or a permanent change? If the former, will it not be advantageous to select a climate somewhat similar to that in which the patient will be compelled to live after practical cure? Assuming that a permanent change is indicated, that the patient lives in a changeable climate and that his condition is known to have been favorably influenced by certain seasons and unfavorably by others, is it not advisable to send him to a climate possessing the qualities of the former seasons and lacking those of the latter? These are some of the questions we ought to ask our patients and ourselves before advising a change of climate at all.

Cobb touches the real issue when he says that "we as a people have done less for the consumptive than any of the great modern powers, and the reason for

it partly is that we have grown up with the fixed idea that such cases must go to the West and have a special climate to enable them to recover. It is this wrong idea which keeps back the local sanatorium movement in the large cities of the East, where hundreds of such institutions are needed to care for that large class unable to go off to special climates. Truly climate is the least essential of the consumptive's necessities. And so, if there be the least doubt of your patient's ability to properly maintain himself in the West, then by all means keep him at home, for the West is already overwhelmed with poor consumptives and the sad stories of their distress makes one's heart sick. But, if he has plenty of money and is set upon it, do not hesitate to send him West, and advise and urge him to stay until he is well. And before you send him there, disabuse his delusion that climate cure is some concrete, specific thing which grows upon the sage bush, or hangs temptingly upon the cacti, which he can reach out for and take unto himself in one, deep, satisfying gulp.

The finest climate possibly in the world contains as natives the worst cases of phthisis; this is the region of Anjona and New Mexico, where the ranks of the native Indians have been decimated by tuberculosis; yet these tribes and their ancestors know no other world. The magic words, "The West," beckons to the Eastern doctor and the Eastern patient, but it is a mirage as fatal maybe as that seen on the desert by the thirst-stricken wanderer.

ANAESTHESIA.

THIS subject is of primary importance, though one would hardly think so from the haphazard and incompetent manner in which general narcotism is oftentimes induced. The patient is then really on the borderline between life and death, and much too frequently has this line been crossed in the most ghastly manner when the exhibition of adequate skill and the observance of essential precautions would have obviated any such calamity. Much too frequently, we repeat, and certainly much oftener than the statistics would lead us to suppose. Dr. R. C. Myles, of this city, observed quite rightly, in discussing Dr. Gwathmey's paper,* that those who have lost patients under anaesthesia do not like to give the statistics for publication. They are perfectly willing to confer with one another on the subject, but not with the profession at large. Probably not five per cent. of these fatal accidents are reported. So the fatality is far beyond what the literature gives.

*A plea for the Scientific Administration of Anaesthetics, James Taylor Gwathmey, *Jour. A. M. A.*, Oct. 27, '06.

Accidents? An accident is something which happens despite human forethought. And, is such forethought always exercised before "putting a patient under." Has the urine been carefully examined? Will the kidneys stand ether? Have the heart and lungs been thoroughly gone over; or have they on the contrary been overlooked or simply thumped and listened to in a perfunctory and routine way. Will the heart stand chloroform? Is there atheroma or emphysema, or are there catarrhs or obstructions in the upper air passages. Is the patient very fat? Have the abdominal organs been investigated? Have the bowels been properly evacuated? Is the stomach empty? Is there any possibility of a tooth or foreign body entering the trachea? Has a choice of the various anaesthetics been made befitting the constitution of the patient? Has the anaesthetist his hypodermatic needle or several of them properly charged for all possible emergencies? Has he his tongue forceps and his mouth gags ready for instant use? Is he every moment watching the pulse, the breathing, the stertor (or more dreadful than the stertor, the calm, noiseless respiration which presently dies away quite beyond restoration), the tongue, the color of the blood, the conjunctives, the possibly distended pupil? We are certainly most averse to establishing a precedent against the earning of every possible fee on the part of the young physician. God knows—we say it reverently—he gets few enough as it is; nor should the man in established practice be debarred from receiving an occasional honorarium for doing something not quite in his own line. Surely we are glad if, by such means, things may be "helped along some." But we do maintain that the anaesthetist at an operation is a more important man and has greater responsibilities than the operating surgeon; and that he should, therefore, be thoroughly equipped for this most grave and very trying task which he has undertaken.

Nevertheless, despite the most anxious care, fatalities do occur under anaesthesia. Such, we understand, was the case with Colonel Shepard, who, on the morning of the operation, ate a solid breakfast, despite the instructions of his physicians. Such was also the case when Dr. Sands, of blessed memory, sought in a Continental clinic, to establish the superiority of ether over chloroform, the result being that the patient died upon the table.

Probably the most potent cause of death in anaesthesia is fright, which induces a vasomotor paralysis, with the result that most of the patient's blood is emptied into his distended capillaries, the capacity of these minute vessels being *in toto* practically sufficient to receive all the blood in the body. Therefore we should take every possible means to obviate this cause—by giving a large dose (30 grains) of the

bromides early on the morning of the operation and perhaps also a hypnotic on the evening before; by injecting an opiate before the operation, by suggestion and persuasion to reassure the patient; by tact and gentleness in beginning the anæsthesia. Gwathmey, who has made a most profound study of this subject, has constructed an ingenious apparatus by which he is able to compose the patient's psychism; for the male he begins with a mixture having the odor of a cocktail and, for a female, that of cologne water. Undoubtedly a great advance in anæsthesia was made when the use of ether was preceded by that of nitrous oxide gas. The latter is the safest and the most rapid general anæsthetic we have; and by means of an apparatus with which we are now all familiar—no man should give an anæsthetic who is not—one can easily pass from the use of nitrous oxide to that of ether. Thus does the patient have little time for terror, nor is there nearly as much subsequent nausea, as when ether alone is given.

The dangers of general anæsthesia are so thoroughly appreciated, if not understood, that a number of ways have been devised by which anæsthesia could be induced hypodermatically or locally. Some of these have been thoroughly tried and are distinctly valuable; others must receive the most rigid criticism before they can be endorsed by our profession. Scopolamine as a general anæsthetic by hypodermic has for a brief space occupied the medical zenith; it has now deservedly reached its nadir, from which may it never ascend. C. E. Case and Tinsley Brown, writing in the *Alkaloidal Clinic* (January, '07), have found the hypodermatic use of hyoscine, morphine and cactin effective as a general anæsthetic "in cases which cannot use the volatile anæsthetics." It seems that 1-100 gr. hyoscine hydrobromide and 1-4 gr. morphine are given; the amount of cactin which is included is not stated. This procedure is worthy of careful trial. What has become of anæsthesia by means of the lumbar puncture? We don't hear much of it nowadays, although only a year or two ago it was "the real thing." What an enthusiastic profession we are; and how soon our enthusiasm evaporates, like the mists of the morning. As to local anæsthesia, cocaine easily maintains first place; most of the preparations suggested as improvements upon it contain it in decisive proportion. Much can be done after local anæsthesia by skilful men; Bodine has done a number of extensive hernia operations under these circumstances. And Gant has done much painless work about the anal region after hypodermatic injection of sterile cold water.

We have extended the editorial limits in considering this vital subject; and would but repeat the wise instruction which Dr. James. E. Kelly, of this city, was wont to give his interns: "Remember, gentlemen, the

maximum of anæsthesia with a minimum of the anæsthetic."*

TYPHOID FEVER EPIDEMIC.

A TYPHOID fever epidemic has been well characterized as a crime of the municipality against the individual. And this is in large measure a just statement. For these epidemics are usually caused by polluted water supplies, which are in turn the outcome of official carelessness, incompetence or corruption. It has been so in a most frightful manner in Ithaca and in Philadelphia; it has recently been so in Scranton; and other cities, such as Pittsburg, have naturally been fearing lest they be attacked in turn. The Scranton experience has been fairly typical of those which American cities have from time to time had to undergo. Even to-day we will find those among the pious who will call them "visitations of Providence." We don't think nearly so hard of Providence as all that. Providence has nothing to do with these; they are caused entirely by a specific germ plus the political agencies above mentioned. The fever had invaded Scranton for nearly a month before any real effort was made to learn the source of the infection; and even the work of purification was done, not by the local authorities, but by the State Board of Health. The water supply was suspected from the beginning; but this supply was the property of a private corporation with considerable local power. So, naturally (at least that is the natural way in American communities), there was some delicacy about fixing the responsibility, and some timidity also, in view of the warning by the company that people had best be careful how they made charges that they couldn't prove. There are two reservoirs, one of which, containing the suspected water, was shut off; drawing from the other, however, did not stop the epidemic, the reason being, as was discovered later, that there was a frequent flow of water between the two, and that their contents were therefore much alike. The State officials found the bacillus in this water. Then after a thousand cases had developed, with seventy-five deaths, the authorities set about doing something. The inhabitants were directed to let each faucet run off its water for ten minutes before using it, so that detritus in the pipes might be removed; all water used for domestic purposes was to be boiled; there was a general, eleventh-hour cleaning up of the city—and a very badly needed one, indeed, so much so that some residents coming home after the health employees had been at work, found it difficult to recognize their own property. The money loss from these epidemics has been enormous; and we heartily endorse the advice

*There are several important papers upon Anæsthetics in *The Leucocyte*, Dec., '06.

to the head of every family which has suffered to bring damage suits against their municipalities, and to pursue these suits to the bitter end: "Sooner or later the adequacy of the cause of action will be judicially recognized, and then it will be realized that belated activity such as that of Scranton now cannot win forgiveness for gross carelessness of human life," declares our lay namesake.

Typhoid epidemics are almost invariably due to the neglect of essential and really quite simple precautions. The germ either from the vomit or the excreta of a typhoid sufferer is taken into the alimentary canal of the victim, who thus becomes infected. Care of drainage, the boiling of drinking water and of milk are essential whenever the disease is feared. Of course every community should at all times, epidemic or no epidemic, have pure drinking water. Oyster beds should have official supervision. The patient should have individual utensils. There should be scientific disinfection of the hands of attendants, vessels, bed-clothing, feces, urine and sputum. Only by such means as these may a typhoid epidemic be averted.

HEALTH INSURANCE.

IN the past fifty years the idea of insurance in its various phases has broadened in all directions.

This conception is really socialistic in its practice, for it realizes that the losses due to disasters of various sorts should not fall on the individual, but be distributed over a large number of persons, which makes the burden carried by each insignificant. This idea has been carried out so successfully in life insurance that even with the severe investigations of the past two years, all the companies have been found thoroughly solvent. The life tables on the basis of one hundred thousand lives are marvelously accurate. It is impossible to secure any such tables in fire insurance, for disasters like those of San Francisco, Baltimore, Haverhill, Chicago, and Boston occur from time to time, but following no average or law. Hence, fire insurance must always be more or less of a pure gamble, at least until building laws are made so uniform that some standards of construction are universal. In accident insurance we find a condition midway between fire and life insurance, not as easy to calculate as life, nor as uncertain as fire.

Of late years health insurance has been the study and puzzle of the insurance authorities. It is a question that is bound up with many difficulties and technicalities. Thus, one information bureau reports to the International Association of Accident Underwriters that there were over one hundred and eighteen thousand cases of accidents reported to the companies for the year ending June 30, 1906, as against one hundred and three thousand the year before, a gain of nearly fourteen per cent. in one

year. In the same period there were twenty-seven thousand of sickness claims presented to the companies, as against thirty thousand the year before, a percentage of gain of twenty-three per cent. This makes a grand total of one hundred and fifty-eight thousand claims reported in one year, with a net gain of over fifty per cent. The bureau was able to detect over five thousand questionable risks, while one thousand candidates were rejected, three thousand policies were cancelled and six hundred were marked "non-renewable."

Curiously enough, during this period over nineteen thousand persons were reported to have had previous claims against the same company, being divided as follows: Fourteen thousand reported two accidents, thirty-five hundred, three, one thousand reported four, two hundred and seventy-seven claimed five, ninety-seven were unfortunate six times, thirty were similarly afflicted seven times, fourteen people reported eight accidents, four reported nine, two reported ten, and one unique unfortunate reported eleven catastrophes to his company.

This makes a file of 858,263 accident and health records, which forms quite a respectable number. Still, the health problem is troublesome, and many companies would reject that feature of their business if competition did not force them to it. The companies have found their losses to exceed all calculations for a variety of reasons. In the first place, when health insurance was seriously undertaken in America about ten years ago, the benefits were confined to loss of time from a very few ailments. Many of the usual and most to be dreaded diseases were designedly omitted, just as formerly insurance against accidents was confined largely to travel only. The time for benefits was limited also. Gradually, however, the policies were broadened so as to cover disablement by any disease. Then the two contracts were merged and finally many companies refuse to issue a health policy unless the applicant also takes an accident policy.

The men who conceived this sort of insurance, expected at first that it would attract a poor class of patronage and much malingering. Small wage-earners were expected to be the chief patrons, for small amounts. Curiously enough, the first patrons were men of wealth, showing that the first men to patronize a good thing are brainy men who do not wait for initiation. Clerks have come in since, but the average wage-earner has not used this insurance at all. In the West, especially among miners and railroad men, a form of protection has been sold by issuing "hospital tickets," entitling one to a free bed and free treatment at any one of a number of hospitals or a certain allowance for home treatment. But this insurance is by no means universal, even in the classes named.

Gradually, the insurance men included fifteen diseases

in their policies, then twenty-six, then forty, and now they issue a "general" policy, covering all acute disease, for it was found that a limited policy was very troublesome. Of course, each policy was higher priced, yet each one sold better than the one before. But these policies have still some defects from the standpoint of the insured. Thus, the general policy does not cover such chronic diseases as consumption, paralysis, locomotor ataxia, or rheumatism, yet it is in these illnesses that the need of protection is the greatest. The average man can weather typhoid fever or pneumonia, but phthisis by cutting off his ordinary vocation becomes a serious financial question. Again, the option or renewal is not left to the insured, as in life insurance; hence, if a man falls ill two or three times, the companies cut him off their lists, yet probably this is the man who needs health insurance the most, and he is deprived of it, notwithstanding his forethought and prudence.

These defects are due to the fact that health insurance was devised by the accident companies, rather than by life insurance men. All the better authorities now agree that these two defects should be remedied. As yet there is a distrust of the sickness tables, due to the fact that the English and Scotch tables, which run back many years, were misleading for American fields. Of course, such a policy would require a mathematically adequate reserve, but the present laws of New York State provide for this already.

While the duration of life is increasing from the partial suppression of contagious and septic diseases, yet this is counterbalanced by an increased mortality from diseases due to personal habits or occupations; thus the death-rate from cancer and renal diseases in the City of New York has doubled in thirty years. In a period of nine years, Bellevue Hospital treated fifty-one thousand alcoholic patients, of which number sixty-six per cent. were between thirty and forty-nine. Seventy-five per cent. of all chronic alcoholics were found to have degeneration of the liver, atrophy of the heart, or kidney trouble. There are also other phases to the question, but they all admit of solution. A Western company has issued a "whole-life" health policy which scales down the indemnity as the policy-holder grows older, according to occupation and age. The only disadvantage to this policy is that, as a rule, the older a client grows, the more he needs money, as his obligations are apt to increase.

A pleasant feature of this form of insurance is that many companies have paid high tributes to the efficiency and honesty of the examining doctors in these cases. Thus, one company reports: "Our experience has been, as a rule, that our physicians have been just as honest, just as conscientious and just as careful in their allotment of time of durability as our representative would be; in fact, the physician is safer than our

deputy. He is more exacting than the deputy. The deputy who is solicitous of making a showing goes around and talks about how much was paid Mr. Smith, but the physician does not have that particular interest in it, and we find this to be quite a factor."

THE PROFESSION AS PUBLIC EDUCATORS.

HERE has come to be a tendency in our profession to be useful to the community in ways not confined within the narrow limits of office consultation and prescription writing. We have come to take a hand in the education of the public upon subjects that have an intimate relation to the science and art of medicine. The very wide range of these subjects may be judged from the long list published in the *Boston Medical and Surgical Journal* (Dec. 27, '06) upon which members of the faculty of Harvard Medical School have expressed a readiness to lecture. This they will do on Saturday evenings and Sunday afternoons, and the audiences will be composed almost entirely of laymen.

There are several reasons why this tendency has obtained: The medical profession must deal very largely with matters with which the community as a body, and not as individuals, is very seriously concerned, such as public water and milk supplies, typhoid infection, the proper ordering of school life, the adulteration of food and drugs, the ways in which the common infectious diseases are spread, the necessity of vaccination, the nature of diseases in general, tuberculosis in early life, the physical and mental development of children, and the like. Such subjects as these have to do with the communal health, and public spirited physicians see the desirability of imparting widely correct and reliable knowledge concerning them. They see especially such necessity in these days, because of the very loose and inaccurate notions concerning them which are oftentimes ventilated in the press by ignorant or ill-informed people of quackish tendencies. It is evident, also, that the best way to prevent the occurrence and the spread of infectious diseases is to educate the public in the broad and fundamental principles of hygiene and sanitation. Moreover, medicine is to-day not the inexact and empiric mass of more or less reliable knowledge that it was in the dim past; it is to-day almost wholly a veritable science based upon carefully ascertained and thoroughly established facts. Wherefore we are able now, as never before, to furnish the laity with very definite and accurate rules making for individual, family and communal health.

In New York City, as in many other municipalities, tuberculosis exhibitions have had the result to educate the public concerning this dreadful disease, and they

have certainly been very salutary in their results. They show, in the most attractive way, by means of photographs, models, tenement house exhibits, tents, shacks, and the like, the manner in which this disease is to be prevented and to be cured. And physicians having the gift (some of us are really quite delightful on the platform) give, with the aid of stereopticon views, most informing and interesting lectures on the subject.

In New York City, at least, the Board of Education has provided an evening free lecture course in which many physicians discourse upon medical topics.

Then those among us who have the literary ability have come to write most readable books on scientific subjects in which laymen have become vitally interested.

There is, with regard to all these activities, one thing for which we, as a profession, should give ourselves credit. By means of these altruistic labors we are making the public healthier without getting any remuneration for doing so. We are teaching the people how to be healthy at the expense of much time and energy on our part, and all the while we are doing this we are tending to curtail our legitimate incomes. But it is all for the good of humanity and the race; so who cares!

To Sea to Study Medicine.—Mr. O'Donnell, a very enterprising gentleman, has recently returned from a four years' cruise, and has re-enlisted for a like period. A few months after he shipped he applied for an apprenticeship in the "hospital corps," as Jack Tar facetiously terms that department; here he remained until mustered out. He went through the hospital training school at Norfolk, Va., studied pharmacy, attended all the medical lectures he could, and was for several months put in charge of the sanatorium for consumptives at Pensacola, Fla., while in the capacity of first-class hospital apprentice. He expects that on re-enlisting he will be made a hospital steward at a salary of \$60 a month and expenses paid. He considers the education he received in the service far ahead of anything he could get in the medical college. "It is practical. In surgery you get the 'real thing' from the very beginning. The head physicians, with whom the apprentices work, are the best that can be secured, the pharmaceutical department is complete, there are twice-a-week lectures and free access to any and all kinds of medical books." All this is had free, with \$60 earned every month in addition. "Tell me where I could better that. I am sure that after the expiration of my next term of service I can pass the examinations and register in any State, and I will have had nearly eight years of practical experience and will have made money besides." Here might be a good way to make up for the shortage in our list of naval surgeons; for some reason or another the service does not seem to appeal particularly to our medical graduates.

BIBLIOGRAPHICAL

International Clinics. A quarterly of illustrated clinical lectures and especially prepared original articles in medicine and surgery. Edited by A. O. J. Kelly, A.M., M.D., Vol. IV. Sixteenth series. 1906. 322 pages. Price, \$2. Philadelphia and London: J. B. Lippincott Company.

This interesting volume by the leading medical men of the world, gives the latest views as to diagnosis, therapeutics and treatment, is beautifully illustrated, thoroughly indexed and covers every department of medicine and surgery. Each successive issue seems to be better than its predecessor, until there appears to be no room for improvement. The price at which it is afforded is merely nominal. It is a practical and economical work to purchase.

Pulmonary Tuberculosis. Its Modern and Specialized Treatment, with a brief account of the methods of study and treatment at the Henry Phipps Institute of Philadelphia. By Albert Philip Francine, A.M. (Harv.), M.D. (U. of P.), of the staff of the Henry Phipps Institute of Philadelphia; examining physician to the White Haven Sanitarium, etc. Illustrated. 12mo., 247 pages. Philadelphia and London: J. B. Lippincott Company. 1907.

This volume adds another to the useful books of its class, which may be read by the patient as well as the physician. The author gives a brief account of the methods employed at that excellent institution, of which he is an officer. The text is well and interestingly written, sufficiently illustrated, and reads easily. It contains many useful hints and helps.

The size of the book shows that it is not intended as an exhaustive work, but only deals with the modern and specialized treatment of its subject. It is worthy a place.

Progressive Medicine, Vol. IV., December, 1906. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Emory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 349 pages, with 29 engravings. Per annum, in four cloth-bound volumes, \$8; in paper binding, \$6; carriage paid to any address. Lea Brothers & Co., publishers, Philadelphia and New York.

The December issue of this quarterly digest completes the series for 1906. It will be found a fitting climax to the thorough work which preceded it. The skilled contributors have finished their labors for the year with never failing energy and care. As a result the busy practitioner can cull in an hour what it has taken investigators and teachers the world over months, if not years, to acquire. Special stress has been laid on practical results and the best methods of treatment. Thus the chaff has been eliminated, and only the wheat remains. Dr. J. Dutton Steele devotes one hundred and twenty pages to Diseases of the Digestive Tract and Allied Organs.

Dr. William T. Belfield treats of Genito-urinary Diseases from Tuberculosis to the Irrigation and Drainage of the seminal duct and Vesicle.

John Rose Bradford, M.D., F.R.C.P., deals with Diseases of the Kidneys.

Dr. Joseph C. Bloodgood devotes one hundred pages

to Fractures, Dislocations, Amputations, and the Surgery of the Extremities.

Dr. H. R. M. Landis contributes over sixty pages to the Therapeutic Referendum. Every page is bristling with therapeutic facts of practical importance. Many useful suggestions are made in regard to drugs. Cases of poisoning by so-called "headache powders" are cited and the possibly injurious effects of adrenalin if used continuously. So through alcohol, ergot, iodine, mercury, mushroom poisoning, nitre, opium, the salicylates, urotropin and many other drugs, the interest is maintained while many important facts are logically developed.

A Guide to Diseases of the Nose and Throat and Their Treatment. By Charles A. Parker, F.R.C.S., Edin., Surgeon to the Throat Hospital, Golden Square, W. With two hundred and fifty illustrations. Octavo, 624 pages. New York: Longmans Green & Co. London: Edward Arnold. 1906.

This book is founded upon lectures given by the author, at the London Throat Hospital, with a view to helping students to acquire the necessary dexterity to examine a patient systematically, to recognize and put in its proper place the particular pathological condition found, and especially to treat both the patient and the local abnormality successfully. And it will be found a practical and useful guide in all these matters.

The text discusses etiology chiefly from the point of view of preventive treatment, describes the gross pathology sufficiently for diagnosis, and lays stress upon those symptoms which require special treatment or are characteristic of the particular disease. The work is well illustrated and the text classically written.

A Practical Treatise on Materia Medica and Therapeutics, with Especial Reference to the Clinical Application of Drugs. By John V. Shoemaker, M.D., LL.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia; Physician to the Medico-Chirurgical Hospital; Member of the American Medical Association and the British Medical Association; Fellow of the Medical Society of London, etc., etc. Sixth edition. Thoroughly revised. (In conformity with latest revised U. S. Pharmacopœia, 1905). Royal octavo, 1244 pages. Price, extra cloth, \$5 net; full sheep \$6 net. Philadelphia, Pa.: F. A. Davis Company.

This volume is one of the most practical and useful works for the therapist, with which we are familiar. The present edition may be considered a new book because of the revision and additions which have been made.

The text is written along broad lines, and is thoroughly in accord with rational therapeutics.

Among the new agents we observe a consideration of the Roentgen Ray and the Finsen Light, Serum Therapy, Animal Extracts, Vibro Therapy, Hydro Therapy, etc. No general practitioner will regret having purchased this work.

Pus in the breast of a woman who is not or has not recently been nursing, is suspicious of some unusual form of infection, such as tuberculosis. (*Am. Jour. Surg.*).

CORRESPONDENCE

SIX DOLLARS A YEAR.

To the Editor of THE MEDICAL TIMES:

These are the dues which members of the New York County Medical Society must pay for the current year. Why is this thus? What is the reason of this thusness—as the adorable Artemas might have observed. It was not always so. Time was—and that not more than a year ago—when three dollars annually from each man seemed ample for all the Society's expenses. And before that so far back as we can remember, this was about the yearly individual assessment. For this we could be assured of some eight pleasant evenings in the year, considerable scientific education, a salutary scrap now and then, a very good buffet supper, and the genial intercourse with one's intimates in which one gloried in his professional successes and admitted (privately, as between man and man) his mistakes in practice, such as he would rather not submit to the consideration of the society at large.

All these good things we have now as before. But instead of paying three dollars for them we must pay twice that amount. It is, therefore, but natural to inquire what additional advantages we have obtained, and if these be sufficient to warrant the doubled dues. Yes; we have a very good directory; but a very good directory, if not so bulky a one, has always been the property of every member under the old regime. And we each receive a copy of a monthly journal. But do we all of us desire this journal? Some of us do; many of us don't. But willy-nilly, it seems we all have to have it and to pay for it. Oh—we had almost forgot to mention—we are now, all of us, also members of a State society. This we know by receiving once a year, in our morning's mail, a programme of papers which some gentlemen are going to read in Albany.

Last year we were for the first time assessed six dollars. Then we were pacified with the explanation that this assessment was necessary because of the expense incident to the reorganization of the two old societies, and their combination, which is now happily established. Besides, there were expenses incurred by several of our representatives who, it seems, had to go about the State upon some affairs rather vaguely essential to our corporate welfare. But all these matters of readjustment would seem to have been disposed of before the dawn of the recent New Year's morning. So that not a few among us consider they have adequate reason to question the occasion for a six dollar assessment this year. These dues, contributed by some four thousand members, make up a very tidy sum. Where is the need for so much money?

To be quite serious—a six dollar assessment is a grave burden upon very many medical men. Practice in this city and county is exceedingly hard—and to a large degree because of conditions for which our own profession is responsible. Somehow or other medical men and their families must subsist, quite in the same way as other people. Incomes are, for the majority of our colleagues, very meagre indeed; and it is on this account that a sober and temperate consideration of this six dollar tax is essential. ENQUIRER.

Less than five per cent. of the expense of the twenty-four slaughtering and meat-packing establishments of Chicago is said to be for wages.

RETROSPECTIVE

The discomforts following anesthesia are considered in a very practical paper by Agnes Pillow (*Cleveland Med. Jour.*, July, '06). The room should be well lighted and ventilated, the temperature 68° to 70° F. The bed should be accessible from both sides and the foot; and it must be so placed that the light shall not shine in the patient's eyes. It should be warm. Hot water bottles should be left about the patient. In case of vomiting the patient must not have anything *per os*. Nausea is relieved by inhalations of vinegar from a cloth. A moist compress to the lips will relieve thirst and dryness of the tongue and lips; the patient may rinse the mouth frequently. Backache is relieved by rubbing, by small pillows to relieve pressure, by turning the patient slightly on the side and supporting him by pillows. For numbness of the limbs—massage and elevation on pillows. For pains: in the head—ice-cap and massage; in the abdomen, due to gas—hot water bottle; due to a distended bladder—hot water bottle over the bladder, perineal stupes, catheterization; when due to wound in the abdominal wall—lighten the binder; due to operations upon the viscera—heat; in chest, due to pleurisy or pneumonia—jacket, ice-cap (room temperature, 65° to 68° F.). Irritation: of the skin from discharges—cleanliness, lanolin, zinc oxide and boric acid ointments; of the nose and throat—keep air warm and moist; of the eye—dark room and ice compresses. Sore mouth and tongue, due to mouth gag or tongue forceps—mouth wash. Sore lips or herpes—vaseline or cold cream. Nervousness: in alcoholics and morphine fiends—massage; in neurasthenia—massage, sympathy, scolding. Faintness: from loss of blood—elevate foot of bed and bandage arms and legs; from pain—hot water bottle or ice; from fright—assurance, cheerfulness, sympathy.

Gastroptosis is a displacement which Glenard, and in our day Einhorn, have shown to be not infrequent. Chambers (*Canadian Pract.*, Aug., '06) considers rightly that the treatment of it is one of the most successful in gastrotherapy. There is almost immediate improvement in the patient's condition; but treatment must be continued for a very long time if a cure is to be achieved. The stomach must be replaced and supported by an abdominal band. Abdominal tension must be increased and the natural supports of the stomach strengthened. The capacity of the upper part of the abdomen must be increased. Perversions of the secretory, motor and sensory functions must be corrected. The bowels must be regulated. The patient's general condition, and especially the tone and strength of the nervous system, must be improved.

Replacement of the stomach is promptly followed by gain in weight, restoration of the gastric functions to the normal, and of nerve tone. Fat becomes deposited in the abdomen, and this raises the abdominal tension. How may the stomach be raised? For flabby abdomens any well-fitting band, applied between the naval and the pubes, is usually sufficient. It should be applied in the recumbent position, the stomach being first forced up into the epigastrium. In place of a band, strips of adhesive plaster may be applied horizontally and diagonally across the lower abdomen. The tone of the abdominal muscles, especially of the recti, may be much improved by means of physical exercise and massage.

While lying down the patient bends the trunk upon the thighs, rising from the recumbent to the sitting position; the feet should be placed under some fixed structure. The recti can also be strengthened by raising the legs from the horizontal to the vertical position while lying upon the back. Massage is especially important in markedly neurasthenic patients. In order to increase the capacity of the upper abdomen deep breathing should be practiced; this tends also to improve the tone of the gastric ligaments and of the abdominal muscles. Tight lacing and heavy skirts are absolutely interdicted for such patients. Perversions of function must be corrected (after the stomach has been replaced) in the same way as when we treat such perversions as independent affections. Hyperacidity requires antacids after food and a mild, easily digested diet. Motor insufficiency requires strychnine and a diet soothing, digestible and easily propelled into the duodenum. The nervous system probably requires special attention. Neurasthenia may be marked. Everything irritative is removed from the digestive tract. We induce sleep, and encourage mental work. "Rest cure" oftentimes gives excellent results; here large quantities of milk and other foods must be ingested. Increase in weight must be attained, to the end that not only shall the general condition thus be improved; but weight, by increasing abdominal tension, becomes itself a therapeutic factor.

Dermatological axioms are set forth by Aronstam (*Med. Monitor*, July, '06). In all cases of protracted eczema appearing abruptly during the period of senility and accompanied by furuncular lesions and intense subjective symptoms, without any appreciable cause to account for it, we should be on our guard for mycosis fungoides, a very dangerous affection. Dry sulphur dusted in the clothing and bedding of scabies patients effects a cure speedier than the fatty preparations of this drug. In all skin affections the four dietetic "p's"—pork, pickles, porridge and pastry—must be refrained from. Water is extremely irritating in acute stages of skin diseases, and must not be used; its value in all chronic cases cannot be overestimated. The presence of lesions (such as hemorrhoids and fistulas) must be sought in all cases of pruritus ani; in scrotal pruritus, where parasites are excluded, examine the urine for sugar. Arsenic must not be continued any great length of time; it has been known to produce intense pigmentation of the covered regions of the body. Chrysophanic acid is one of the most valuable agents against psoriasis—poor results from it are undoubtedly due to its unsatisfactory and fluctuating efficacy as well as to the unsettled manner of its employment when used in ascending or gradual strength; and when a good acid of known strength is selected, the most gratifying results can be confidently anticipated. A magnifying glass is essential in examining lesions of the fingers and hands; scabies will then be detected which the naked eye will find with difficulty; ova of pediculi clinging to the pubic hairs, which are only too frequently overlooked on a cursory examination, will thus be detected. Iodine is invaluable as a remedy in many instances; but its promiscuous and unintelligent use, especially on the extremities, will often give rise to erythematous of varying types, prominently that of the multifiform variety. Yellow, elevated lesions beneath the inferior eyelid or the inner canthus suggest xanthoma, and denote either hepatic derangement or a glycosuric condition.

Specific empyema of the accessory nasal sinuses is a rather uncommon condition, the suppuration being due to the breaking down of gummatous periostitis, and also to secondary infection by pathogenic bacteria. The specific organism has not been isolated microscopically (J. H. Abrams, *N. Y. Med. Rec.*, March 3, '06). There is nasal discharge and fetid breath. Pain is not a constant symptom; it appears during mastication and is localized along the upper row of teeth and the antrum. The discharge is thick, creamy, very abundant, bright yellow and very fetid. The treatment in on way differs from the usual procedures undertaken for the relief of chronic empyema of the sinuses, except that, in addition to surgical measures, the iodides were administered. Abrams well believes that no syphilitic patient is free from the possibility of tertiary manifestations in one form or another; and all such patients should be advised to consult their physicians every one to three years subsequent to the completion of their treatment. Abrams believes that a positive diagnosis of antrum disease is obtainable with an aspirating needle when properly used; and his results show that syphilitic empyema of the accessory sinuses responds quickly to specific treatment and conservative surgery.

A Monument to Dr. Reed.—The President has sent (with his earnest hope that suitable action will be taken) the memorial of the Dr. Walter A. Reed Association, asking for an appropriation for a monument to Dr. Reed and his associates, in recognition of their services to mankind in general. The memorial rightly calls attention to the honors heaped by other nations on Jenner and other medical discoverers, and compares them with the pitiful pensions granted the widows of Dr. Reed and Dr. Lazear—\$17 per month in the latter case. The association has thus far raised \$19,000 of a projected fund of \$25,000 for the benefit of Mrs. Reed, and hopes soon to complete it. The plan for the monument includes not only a memorial to Dr. Reed and Dr. Lazear, but also a tablet containing the names of the soldiers and enlisted men of the Hospital Corps who voluntarily submitted to inoculation—some of whom died in consequence.

In denatured alcohol there are great light and fuel possibilities, especially as regards automobiles and other engines. This alcohol may, under the recent law, be manufactured cheaply from farm products, and even from waste. Among the many alcohols there are only two which are commonly known—ethyl alcohol (which is referred to in common parlance); and methyl or wood alcohol, which is a poison, with injurious fumes, as in the dissolving of shellac. At present, on account of the high price of the alcohol to which we are accustomed, wood alcohol is substituted, to the injury of workmen. The ethyl type is the product of yeast cells living at the expense of a special form of sugar—a form which may be produced from different sources. It may be made by "inverting" cane sugar; by "hydrolizing"—the chemical addition of water to starch; by malting grain; or by natural growth in fresh juices and saps. Yeast action on sugar from any of these sources produces alcohol and also about six per cent. of other ingredients. The former, whatever the source of sugar, is of the same composition; but the six per cent. of other material gives individuality to the product, according to the origin of the sugar—as from molasses, or barley, or corn. Alcohol may also

be obtained from such unpromising substances as coke and other forms of carbon—a very difficult matter, however.

Denatured alcohol is pure ethyl alcohol adulterated in accordance with the law; it is then branded "denatured," and is tax free. For many purposes a disagreeable or poisonous substance added to the alcohol does no harm and at the same time renders the alcohol unfit for drinking or medicine. There is, for instance, camphor in celluloid; therefore, alcohol denatured with camphor would not be objectionable in the manufacture of celluloid. The government has selected certain adulterants and has the alcohol denatured in bond under the supervision of its own agents. Unless otherwise specified it must, by law, contain for every 100 parts of ethyl, 10 parts of wood or methyl alcohol, and one-half of 1 part of benzene. Since these ingredients are not suited to all industrial purposes, the government, when requested, will use other substances, such as shellac, resins, acetic acid, pyridin, acetone, methyl acetate, aniline dyes, naphtholene, castor oil, carbon bisulphide and carbolic acid. Professor Lucke, of Columbia, has, by a series of tests, illustrated the comparative efficiency of gasoline and alcohol in internal combustion engines; the latter, though more efficient for motive power, will, it seems, not compete much with gasoline so long as this oil remains as plentiful as it is now. The exception would hold only where gasoline is scarce and where the conditions for making alcohol are most favorable.

Other organs than the lungs to be considered in treating pulmonary tuberculosis is the subject of a wise editorial in *The Therapeutic Gazette* (Nov. 15 '06). Drugs unquestionably can do good; but they can most decidedly do harm unless they are skilfully employed. For instance, the administration of creosote and like substances with the object of destroying the tubercle bacillus in the lungs is worse than futile, being based, as it is, upon an erroneous conception of the pathological process which is present. (The body, in its endeavor to combat the malady, surrounds the infected area with a zone of exudation which prevents any drug circulating in the blood from attacking the tubercle bacillus; moreover, any drug capable of destroying this bacillus in the tissues, will almost certainly be powerful enough to damage these tissues.) Whatever is put into the body must also find its way out; and a drug may do more harm than good if, in the course of its elimination, it strains or irritates organs which are already impaired in their function because of the presence of disease elsewhere. And oftentimes drugs given to combat an infection so disorder the digestion and diminish the appetite that the vital resistance of the patient is diminished and his ability to struggle with the disease is impaired. The stomach, bowels and kidneys must be carefully studied in any case in which the tubercle bacillus is producing pathological processes in the body. Heger has shown that a very large proportion of tubercular patients have distinct kidney lesions; sometimes these are various grades of nephritis, and even actual kidney infection with the bacilli is shown. Walsh has found that out of thirty-three autopsies, tubercles were found in the kidneys in 58 per cent. In certain instances nephritis is probably due to tubercular toxin rather than to the bacillus itself. It is thus manifest that such drugs as creosote and the iodine

preparations, which irritate these important and very delicate organs, should be used with the greatest circumspection.

Professor Camillo Golgi, rector of the University of Pavia, has this year been given the Nobel Prize. He is the first Italian to have achieved this honor. He was born in 1845 in a village in the province of Brescia, the son of a physician. He began his career as assistant in the laboratory for experimental pathology in the institution of which he became rector. He devoted himself to histology, a branch strangely neglected in Italy. The bread and butter question compelled him to accept the position of head of the Abbiategrosso Hospital; but he found time to continue his experiments. In 1870 he discovered the Golgi stain by which, with the aid of silver nitrate, nerve substance is so colored that it becomes possible to ascertain the relations between fibres and cells. This discovery earned him calls to three universities; he chose Pavia, taking the newly founded chair of histology. From this time on he studied mostly malaria, tracing the development of the parasites; he learned why malarial fever is intermittent, and ascertained the best method of administering quinine, both as a remedy and preventive.

Compulsory notification of cases of pulmonary tuberculosis is urged by J. Robertson (*Edinb. Med. Jour.*, Jan., '06), upon the following grounds: The private medical attendant has generally to concern himself with the treatment of the case, as distinguished from the prevention of the spread of the disease; there is where there is no notification, very little attention paid to such prevention. Where notification is generally adopted it will be possible to get in the larger districts skilled persons to devote their time to insuring, within reasonable limits, that the sufferer carries out the very simple precautions necessary to prevent the spread of the disease. Through notification, statistics will in time accumulate on the important points in the etiology of the disease; when there is none, figures based on inquiries made after death are of little value in demonstrating the conditions which obtained at an early stage of the disease. Notification enables disinfection and cleansing to be looked after in a systematic and regular fashion; and it draws particular attention to the fact that the disease may be spread if the sufferer is not careful.

To Phonograph Noise Nuisances.—Mere man in this community will certainly have to bow in humility before Mrs. Isaac L. Rice, who has accomplished what seems to have been quite impossible to the electorate. She has succeeded in inducing the Federal authorities to suppress unnecessary boat noises in the waters about Manhattan Island. And she is now organizing a society to quell the strident voices and noises of the town, particularly in the neighborhood of hospitals. The blowing of horns by venders, the jangling of the junk cart bells, the discords of the hand organs and the German bands, the yelling of the sellers of vegetables, ice and coal, the unnecessary clanging of street car bells, the "wuxtry" cries of the newsboys; these and a thousand other needless noises will surely be mitigated, we may be certain—lords of creation that we imagine ourselves to be—now that one weak woman has taken a hand in the game. Who knows but that even the honk-honk of the automobile may be suppressed?

The Health Department will, of course, do all that

lies within it. Seriously, the sounds around the hospitals are a very grievous and oftentimes heartless matter. It is said, and undoubtedly it is a fact, that such noises have been responsible for the deaths of patients of sensitive temperament, who have undergone operations and have needed absolute repose—patients who would not have died if the needed rest and sleep could have been vouchsafed them.

Many eminent men and women, states the *Sun*, are members of the new society which Mrs. Rice has originated; and new applications are coming in fast. One of the members, who is connected with a big phonograph manufacturing concern, is working on a specially sensitized record that will be used in phonographs put in the wards of hospitals to gather in the sounds that float in from surrounding streets; at the meetings of this society the members will thus hear what sort of things the hospital patients have to endure. It is not unlikely some parts of the records may have to be expurgated, especially those that are taken in near the "gas house district." The sounds are to be reproduced in the volume they have when they strike the ears of the patients.

The scarcity of naval surgeons seems universal, to judge by the *Lancet's* statement that while ships' surgeons formerly remained in the service a long time, and that while a great number of candidates were constantly waiting for such vacancies as might occur, circumstances have now altered so much that advertisements for these workers appear frequently in the medical journals. The *Leipziger Verband*, an important medical union, has fixed the conditions under which it will allow its members to accept such appointments. The monthly salary is to be from 175 to 250 marks, according to the time of service; and 300 marks a month for coasting vessels in China. Medical men who have gone through a course at the Hamburg Institute for Tropical Medicine are entitled to extra pay at the rate of 50 marks a month. If there is a wine allowance the value of the amount (if any) unused by the medical officer must be paid to him in cash at the end of the voyage. These physicians may charge fees for the treatment of saloon passengers, and the companies have to abstain from advertising free medical attendance on board. The doctor must rank with a chief officer, and if he is obliged to wear uniform he is entitled to an extra allowance for the purchase of it. He must have a comfortable cabin, and an extra room for his dispensary. He may go ashore in a port on simply notifying the captain and without his special permission; though, of course, on his own responsibility. (Excellent requirements these, although they have a little of the labor union flavor. The one that the cost of unused wine be paid the medical officer at the end of the voyage is probably superfluous; most ship's surgeons, like the other officers, are likely to consume the limit on voyages.)

The high rate of infant mortality is certainly one of the darkest blots on the 'scutcheon of modern civilization. The Mayor of Huddersfield, England, has, however, made a suggestive experiment. He has offered a prize of \$5 for every child born during his term of office which lived at least twelve months. Though several epidemics occurred the mortality was reduced from 122 to 44 per thousand, largely by the aid of women who instructed mothers in sanitary matters. Ma-

ternal ignorance and carelessness are thus important factors. Another of prime importance, as we know, has been impure milk. Intestinal troubles caused by improper food (chiefly cows' milk) account for the largest number of deaths of infants under one year. Dr. William Wright has entered in the *Lancet* a strong plea for the use of goats' instead of cows' milk; he finds the former much superior in three essentials—cleanliness, digestibility, and freedom from infectious germs. The Parisian meat inspectors have failed to discover a single case of tuberculosis among the 130,000 goats and kids killed in that city. Weight for weight, declares Dr. Wright, the goat yields twice as much milk as the cow, and if the animals are properly fed, their milk has no flavor to distinguish it from cows' milk.

Psychasthenia occurs in five different forms (G. A. Blumer, *Jour. Nerv. and Ment. Dis.*, May, '06): 1. The simple neurasthenia, with physical and moral depression, but without any accompanying sense of disease. 2. The patient who feels acutely and suffers from his state of depression; he develops a general tendency to exaggeration and generalization. 3. The patient who shows diffuse agitation, especially in the affective and motor fields—who has crises of agitation and anguish. 4. He whose agitations are systematized in such a way as to reproduce always the same form of anguish, or the same mental process with respect to the same occurrences—the patient who presents tics, phobias or mental manias. The patient who sums up all the preceding disorders in obsessional ideas of disease, of shame, of crime, of sacrilege, which may express themselves by crises, or more or less continuously, whereby varieties in the gravity of the obsession itself would be determined.

Dirty Bedding.—Dirty bank notes, filthy sweat-shop clothing and much other uncleanness has recently received attention by sanitarians. An additional menace to the public health has been found by an English sanitary officer to exist in dirty bedding, states *The Medical Age*. The cheap flock bedding sold in the poorer quarters of London present abundant opportunities for the spread of disease. It is made of filthy rags collected from dust heaps; these rags are shredded by machinery without any preliminary cleansing and are then made into mattresses. One gramme of this flock yielded 7,600,000 colonies of bacteria, while only 6,500,000 were obtained from a like amount of sewage. The very poor certainly do have a deal to contend with in the present condition of civilization.

Cancer after Hysterectomy.—A. F. Currier (*N. Y. Med. Jour.*, July 28, '06) dwells upon the necessity of more careful clinical and pathological records, both public and private, in all cases in which supravaginal hysterectomy is performed. Thus would cancer of the cervix or body be discovered in unsuspected cases; and thus would many facts concerning the evolution of cancer be brought to light. Those who have undergone this operation should be examined at six months' intervals, especially those whose tissues are in a bad condition of nutrition or who suffer from hereditary taint. Complete removal of the uterus offers greater security from cancer than does oblation of the cervix only; the former operation is certainly preferable if the history of the case reveals any conditions which suggest the possibility, either near or remote, of tissue degeneration.

Intramuscular Injections in Constitutional Syphilis.—H. R. Fowler (*Dublin Jour. Med. Sc.*, May, '06) considers this method advantageous for these reasons: Absorption is certain; the dose is accurate; there is rapidity of mercurial saturation; there is less time in hospital; there is a diagnostic value, as in differentiating a gumma from a malignant growth: there is absence of consequent gastrointestinal disorder; there is relief from the use of internal medicines; the physician is able to keep patients under control and observation. The disadvantages are: Those which are common to all forms of mercurial administration, but to a lesser degree; pain, which varies with the patient's susceptibility, the substance used and the manner of injection; danger of infiltrations, abscesses, and fat embolisms; mercurial stasis, in which the mercury ceases to be absorbed and eliminated—a menace to the patient.

Early Diagnosis of Malignant Disease.—A. A. Landry (*New Orleans Med. and Surg. Jour.*, June, '06) finds as characteristic of incipient malignant tumors of the uterus, stomach and breast: Rapid growth; tendency of the tumor to invade surrounding tissues; pain, spontaneous and lancinating—but this may be a misleading symptom and may not characterize cancer. Too much importance should not be given to retraction of the nipple in mammary cancer. Redness, œdema, nodular development, involvement of lymphatic glands, and the cachexia are late symptoms, which should not be waited for before having recourse to radical treatment. Early examination in suspected uterine cancer is recommended, as is also an early exploratory operation in suspected gastric cancer.

Poisoning from canned beans is described by Rolly (*Munich Mediz. Wochensher*), who found both the colon and the paratyphoid bacillus in some canned green beans which had been eaten freely by the workmen in a Leipsic warehouse. In about twenty hours they began to come to the hospital for relief from symptoms of severe enteritis, chills, nausea, vomiting, headache, diarrhœa, etc. In some cases the first symptoms were noticed for hours after eating the beans. The disturbance lasted for several days; all the two hundred and fifty persons affected gradually recovered. The beans had been heated, but not to the boiling point. The intoxication was probably caused by the metabolic products of these bacteria. The prevalence of the gastric symptoms indicated that ingested toxins rather than the direct action of the germs themselves, caused the symptoms.

Convulsions in Typhoid Fever.—Osler (*The Practitioner*, Jan., '06) groups these manifestations according to the conditions under which they take place: At the onset of the disease; this symptom is more frequent in children, but has been observed in adults. As a manifestation of toxæmia, convulsions occur during the course of the disease; though alarming, they have no ill effects. They occur as a result of severe cerebral complications, such as thrombosis, meningitis or acute encephalitis. They may, rarely, occur in convalescence, from unknown causes. Osler considers the prognosis, when convulsions appear, as not very grave, although the nature of this complication is alarming.

A sugar is indicated by the ending ose in naming carbon compounds; thus—lactose, glucose, fructose, sucrose, etc.

Immunity to infectious diseases is either natural or acquired. With regard to *natural immunity*: It is well known that many diseases which attack man cannot be inoculated into animals, and that biologists are familiar with many examples of immunity which are confined to particular species. The lower animals cannot apparently be infected with scarlet fever or measles; nor man with chicken cholera. The negro is less susceptible than the white man to yellow fever. The resistance which these examples illustrate has occurred naturally, not through having the disease; it is a *natural immunity*, which may be either the inherited immunity of species and varieties of animals, or inherited family or individual immunity. With regard to *acquired immunity*. No fact is better known to physicians than that an attack of certain infectious diseases brings about some kind of change in the patient's tissues which protects him, or renders him immune, against further attacks of the same disease. Inasmuch as he was previously susceptible, the new property is an acquired one, and he is now said to possess an *acquired immunity* against this infection. Acquired immunity may be either *active* or *passive*. Immunity which results from an infection depends on a specific reaction on the part of the tissue cells in response to the chemical injury produced by the bacteria or their toxins. This is *active acquired immunity*. Contrariwise, the resistance which is established in an individual through an injection of an immune serum (such as diphtheria antitoxin) is a *passive acquired immunity*, since it depends on the introduction of ready-made immunizing substances rather than on their production through an active process on the part of the one infected.

Antibacterial and antitoxic immunity are also to be differentiated. Although such diseases as typhoid and cholera are accompanied by pronounced toxic symptoms, the poisonous substances seem to be integrally associated with the bacterial protoplasm and not secreted in a soluble or diffusible form by the living cells; such are intracellular toxins or endotoxins. These endotoxins are, it is believed, liberated only after the bacteria are killed and dissolved. When one, through infection, has acquired immunity to typhoid or cholera, his fresh serum is able to kill the respective bacterium, but does not seem to be able to neutralize its toxic substance. Hence, on the basis of the nature of the serum, immunity to such disease is spoken of as *antibacterial* rather than *antitoxic*. On the other hand, the symptoms which are so characteristic of tetanus are produced not by contact of the bacteria with the nervous system, but rather through the specific soluble toxin which is secreted by the bacilli in the wound where they reside, and which is carried from the wound to the nervous system through the lymphatic or blood circulation, the bacterium itself not being transported. Hence, though tetanus is a bacterial disease, it is at the same time and in a peculiar sense a toxic disease. The serum of an animal which has acquired immunity to diphtheria or tetanus neutralizes the corresponding soluble toxin, but does not necessarily injure the micro-organism itself. Here the immunity is *antitoxic* and not *antibacterial*. This is an important distinction. For example, then: A child which has received a prophylactic injection of diphtheria antitoxin is in a state of *acquired passive anti-*

toxic immunity to diphtheria; if immunity to typhoid has developed as a result of the disease, the condition is that of *acquired active antibacterial immunity* to typhoid. (From Dr. Rickett's excellent book on Infection, Immunity and Serum Therapy, *Jour. A. M. A.* Press.)

Tobacco Amblyopia.—Dunn (*Lancet*, Dec. 1, '06) finds that every case has certain general features which at once suggest the source of the trouble—pallid face, tremulousness of the hands and marked furring of the tongue. There is usually a history of blurred and failing vision for several weeks, or loss of appetite and sleeplessness. Tobacco amblyopia is very rare in youth; it is most frequent during middle age. The toxic symptoms are probably due to a lowered vitality of the tissues, with advancing age, and followed by a defective elimination of the poison. The chief factor determining the onset of the toxic symptoms is the quality of the tobacco used. Workmen use shag tobacco which, being strong, can be indulged in excessively without causing any local disturbing effects. Milder forms of the weed always cause local symptoms such as soreness of the tongue and lips, phenyngal catarrh, etc. From a quarter to half an ounce is smoked daily in toxic cases. The alkaloid nicotine is the main if not the only cause of the toxemia. The ophthalmic appearances are entirely negative, yet chronic inflammatory changes may be present in the optic nerve. However, a papillomacular scotoma for green and red is always present. Loss of color perception occurs in other pathological conditions of the optic nerve; but in all such cases there is ophthalmoscopic evidence of the disease by which it is caused. Treatment requires two things: absolute prohibition of tobacco, and the stimulation of the gastric digestion and the cure of the chronic gastritis. The latter is really accomplished by means of a tonic, such as strychnine and iron. Prognosis is good. When the symptoms have persisted for not more than three months perfect recovery of vision is likely; after that period full vision is not always recovered, though great improvement generally results. All forms of tobacco must be prohibited for at least eight months, after which a mild brand may be smoked tentatively and moderately. This affection is most frequently seen among men who are able to smoke at their work, such as bricklayers, bookmakers, etc.

Adrenalin in glaucoma is advocated by Grandclement (*La Clin. Ophthal.*), who claims that it will cure this disease whether primary or secondary. Four conditions are, however, necessary to success: The disease must be recent, not of standing long enough to have produced lesions of the ciliary body, iris or in the angles of the anterior chamber. The adrenalin must be instilled at intervals of half an hour, without any interruption whatever, for about three days, when the tension will have been reduced. Eserin must be used at the same time, to combat two of the processes that offend glaucoma; the hypersecretion of aqueous humor by the congested ciliary body, and the plugging of the angles of the anterior chamber by the dilatation of the pupil. The remedy must be discontinued as soon as the tension has reached the normal, since its overuse tends to produce athroma of the larger vessels.

In the coming revision of the United States Pharmacopœia Wilbert (*Jour. A. M. A.*, Dec. 15, '66) advises that the active co-operation and support of physicians as well as pharmacists should be enlisted. The contents of the book should be indicated, and should be limited to an enumeration and description of articles, the properties and uses of which are well-established and generally recognized. The work of revising the book should be practically accomplished before the meeting of the national convention, and the several changes, as proposed, should be given wide publicity. As in the past, the national convention should act on the general principles involved and should entrust the minor details to the committee on revision and the board of trustees. Future editions should be revised by a much smaller committee of directly responsible editors. There should be a standing committee on the Pharmacopœia, for the twofold purpose of collecting information to be used in connection with its revision and of popularizing it with the medical profession.

Serum Pathology.—As our readers are going to hear a great deal about serums during the next few years, wise articles on this subject are well worthy consideration. W. H. Mainwaring (*The Application of Physical Chemistry to Serum Pathology*, *Brit. Med. Jour.*, Dec. 1, '06), finds that the psychochemical law proposed for the absorption of the specific thermostable substance of hemolysis serum by blood corpuscles can neither be proved nor disproved, because of changes in the chemical nature of heated hemolytic serum after exposure to corpuscles. The same is true as regards the interaction of the specific thermostable and thermolabile substances of hemolytic serum and the interaction of diphtheria toxine and antitoxine.

The duration of a medical craze is the subject of a very wise editorial in *American Medicine* relating to such movements as Christian Science. A review of all past crazes, especially those of the last century or two, shows that their rise, culmination and collapse follow something in the nature of a general law. Given a remarkable personality, an absurd mysticism which appeals to every one except the most matter-of-fact minds, an audacious assurance of cure and much advertising, and there are always millions of people with chronic or incurable complaints—or simply complaints of nothing in particular—who find extreme gratification if not actual comfort in chasing after such a medical will-o'-the-wisp and are willing to pay a handsome admittance fee to the performance. Then comes disappointment, coolness, discovery of the fraud and collapse of the cult. The cycle takes from one to two decades to be consummated. No amount of enlightenment as to facts and arguments, ridicule or denunciation seems to shorten the life of a craze, as its disappearance waits upon the slow mental processes of the masses, and of course nothing can prevent the birth of new ones. There are now probably thousands of people of easy morality who are racking their brains to invent methods of duplicating Christian Science or going it one better—for the money in it.

The human race is still in its infancy, so Sir Oliver Lodge assures us. This is comforting. There are, on the other hand, those who beg to register the belief that the race is in its second childhood. There are plenty of specimens tending to prove either assertion.

Infection in Labrador is the title of an important news item in the *Jour. A. M. A.* (Jan. 12, '07), in which observations made by Dr. Grenfell receive weighty comment in the light of present-day researches regarding immunity. There are, in general terms, no endemic diseases along the Labrador coast. It is an excellent field for the study of incubation-periods. Those infections which its natives have contracted have been transmitted along with other blessings of civilization, from Halifax and other ports foreign to this region. And, in accordance with the natural history of infections, those Labradoreans who have been stricken have suffered to a much greater degree than peoples among whom such infections have existed for many generations, and which have become for them a matter of course. It is now the same in Labrador as it was among the Fijians, to whom measles, so comparatively innocuous among us, was brought for the first time in their history in 1875; of the 150,000 inhabitants of the Fiji islands, 40,000 perished of this disease. Thus, in one little Labrador settlement which was for the first time invaded by typhoid, Dr. Grenfell, when he arrived on his healing mission, found the frozen bodies of some eighty who had succumbed speedily and most miserably. Of course many of these lives might have been spared had the people known the peculiar manner in which the typhoid infection is to be met, but undoubtedly most of the deaths were because of the unusual malignancy of an infection, when invading a community which had theretofore been spared. Beriberi was unknown among these good folks until a Norwegian sailor introduced it. Leprosy seems to be unknown among them, although fish is pre-eminently the food consumed. Measles, scarlet fever and diphtheria have among them much graver prognosis than among us. Pulmonary tuberculosis is practically always fatal, notwithstanding that one essential to the cure—cold, germ-free air—is ideally abundant. But of this curative agency, they seem to make little use. The house, or rather hut, of a consumptive is, like their dwellings in general, hermetically sealed during the cold months. And as in typhoid the principles of prevention are either unknown or not grasped by them, the consumptive spits promiscuously, and the bacteria, as is usual when finding a soil quite altogether fresh, are uncommonly virulent. This high death rate is unquestionably due to these things, but mostly to the fact that tuberculosis has until recent years been practically unknown in "Dr. Grenfell's parish." They have no natural immunity to it—these people of Labrador. Like the negroes and the Indians, they must acquire such an immunity through the sad experiences of many generations of their people.

A Nail in a Bronchus.—Dr. Francis Huber and Dr. Henry M. Silver, both visiting to the Beth Israel Hospital, extracted successfully a nail from the right bronchus at its bifurcation, which had, it seems, been in that situation for nine months. This object was discovered by the X-ray. The patient was a boy two years of age. Doctors had found the throat clear and specialists to whom the child was taken could discover nothing in the trachea to account for the convulsive choking from which the child suffered. A tube used in packing the uterus was employed in the extraction of this foreign body, and the manipulation, as may be imagined, was exceedingly delicate and skilful.

MISCELLANY

Unlicensed sanatoria for the insane are to be the subject of investigation by the New York State Lunacy Commission; the attention of the authorities has been directed to those institutions through the suicide recently of two of their inmates.

A tuberculous turkey intended for a Christmas dinner was discovered in Chicago. The fowl was in the last stages of the disease. Dr. Whalen, of the Chicago Health Department, has begun an investigation as to the farm from which the turkey came; it is believed that more of such produce may be similarly affected.

Working Mothers and Infant Mortality.—The *Evening Post* states that the effect on infant mortality of having women work is illustrated in a really startling way by the fact that it is only 148 per 1,000 in the first year of age in the prosperous Friedrichstrasse, but 346 per 1,000 in the labor district of Medding.

Tuberculosis in the navy and marine corps is increasing to an alarming extent, declares Surgeon-General P. M. Rixey. If gunshot wounds, drowning, burns and local injuries are eliminated, tuberculosis as a cause of death in these branches of the military service would stand second in 1900, fourth in 1901 and first for the past three years.

The Keely motor swindle was recently recalled when thirty shares of the stock which sold at par in the days when many shrewd men were deceived into believing that Keely had discovered perpetual motion and the secret of overcoming the force of gravity, were knocked down for \$1. They should now be worth much more, simply as curiosities.

Tuberculosis from Decayed Teeth.—The *American Journal of Clinical Medicine* notes that when glands of the neck are the site of tuberculous enlargement not only the tonsils but also the teeth should be examined. Very often a tubercular adenitis acts as the cause of the glandular enlargement, especially of those glands anterior to the sternomastoid. Removal of the buccal irritation will sometimes cure the adenitis, so that a disfiguring operation will not be needed.

The Nobel Prize in Medicine for 1906 was divided between Prof. Golgi, of the Pania University, and Prof. Ramon y Cayal, of Madrid. Our Latin brethren are certainly setting the pace. Prof. Maissan of Paris received the chemistry prize for his experiments in the isolation of fluorine and his researches into its nature, also for his application of the electric furnace to scientific uses. Prof. Thompson, of Cambridge, received the physics prize for his researches into the nature of electricity.

Dust is becoming of pathological import to the extent that any means of laying it deserves consideration. Dr. Carl of Bordeaux points out that carbonate of magnesium and calcium abound in sea water from which, if evaporated in great shallow trays by the sun's rays, the different salts crystalize in order of insolubility, chloride of sodium being the first to separate, while the others, being more soluble, accumulate in the remaining water. A few quarts of this "mother sea water," having no value, mixed with a ton of ordinary water, should help to lay the dust and prevent its dissemination. The expense would be trifling. No disagreeable odors would offend the nostrils and no deleterious effects would follow its use.

An antidote for opium has been discovered; so comes a story from the Straits Settlements. Opium is very largely used by Chinamen in Singapore, Penang and other Malayan centers; but a plant which grows freely in Selangor is declared to be working wonders in the way of destroying the craving for the somniferous poppy. This plant is a shrub akin to gambier and a decoction from the dried leaves is said to effect the cure. Local anti-opium societies have been formed; and dispensaries have been opened to supply the deficiency, at some of which there have been more than two thousand applicants in a day. It is to be hoped that these reports are trustworthy and that the remedy may not prove worse than the disease.

Woman is less civilized than man because she is more emotional, is the very urbane opinion expressed by *Hearth and Home*, an English publication. In America no sheet would be so ungallant and barbarian. "Physical conditions account for the greater emotionalism of women, and since, as far as we are aware, nothing can alter those physical conditions, women must always be less civilized than man." We have always understood, on the other hand, that it is the *ewig weibliche* which has been the chief influence in civilizing mere man, and in raising him to the proud eminence on which he now stands. So the poets have sung, at any rate; and we for our part think that they have thoroughly understood their business in this respect.

Paper garments generate much warmth in the body. The genus tramp has known this from time immemorial; a cast-off newspaper has oftentimes served as a most comfortable chest protector. He speaks of it affectionately as his bosom friend. But now paper vests are elegantly made by clothiers, states *Dry Goods*. Cuffs, collars, shirt bosoms of paper are also made; and a Saxony firm has come to spin narrow strips of paper and cotton into finished fabrics of common use. Paper and cotton, and paper and woolen are so combined that servicable outing suits, jackets, skirts and many other articles of dress wear are now being produced. The new "textile" is cream colored, and may be washed repeatedly without injuring the surface. It is marketed for a ridiculously low price. Sufficient xylolin, as it is called, to produce a complete plain suit costs but two or three dollars.

Dr. James Carroll.—The movement now under foot to secure special recognition from Congress for Dr. James Carroll, now a first lieutenant in the Medical Corps of the army, certainly deserves endorsement. With Reid, Agramonte and Lazear, this physician was a member of the Cuban Yellow Fever Commission in 1900, to which is due the discovery of the transmission of yellow fever by *stegomyia*. Reid has since died; Lazear sacrificed his life by having permitted himself to be bitten by the mosquito; and Carroll, who also risked his life in the same way, had the good fortune to recover. He was then an acting assistant surgeon, after twenty-four years of service as private, corporal, sergeant and hospital steward, having taken a medical degree while still in the ranks. He is now 52 and it is impossible for him to attain any higher rank than captain under ordinary conditions. Hence it is urged upon Congress to make him an extra lieutenant-colonel in the Medical Corps.

THE SOCIAL AND PHYSICAL HYGIENE OF DANCING.

BY A. L. BENEDICT, A.M., M.D., BUFFALO.

IN studying the evolution of dancing we find that it may be classified, according to social historic development, into three stages.

1. The pas seul, indicative by movement and gesture of various emotions. Most primitive peoples employ this dance, the motions of rhythm varying greatly among different tribes or in the same tribe, yet having the common characteristic of a general muscular expression of emotion. This dance is not a pas seul in the literal sense that only one person dances at a time, and there is often some attempt at symmetry, and occasionally a joining of hands or a combination of dancers in groups. Social features may also be added to the general occasion of the dance, and some of those present may be merely spectators. The term pas seul is, nevertheless, justified by the lack of anything like regular pairing or grouping of dancers; social features are a part of the assembly, not of the dance itself, and the dance is not performed as a spectacle. Such dances have been best studied among the American aborigines.

2. The exhibition dance. This may be a pas seul or a more or less elaborately combined dance. It originated when savagery gave place to a higher barbarism, and persists in the ballet and various other forms of stage dancing. Its object may be mere amusement, of an innocent, artistic nature, or the stimulation of licentious thoughts, or it may have a historic or religious symbolism.

3. The social dance. This dance is essentially modern. The sexes are represented in pairs and, while elaborate figures may be introduced and spectators may be present, the main object is neither the expression of emotion nor the gratification of spectators, but the social enjoyment of the participants.

Unquestionably among all ancient peoples in which the exhibition dance existed, the spectators, of a higher social rank than the dancers, sometimes unbent—probably under the influence of alcohol—and took part in the dance. But, so far as the writer can learn, nothing like the modern social dance occurred before the Middle Ages, excepting in some of the orgies of the late Roman civilization, and even here the dance never gained anything like recognition by decent society.

The social dance, curiously enough, from the standpoint of certain orthodox sects, must be admitted to be a development of Christian, European civilization. This fact is, however, readily explained when we reflect that only under Christian influence has the world developed the conception of social life with the two sexes on an equal basis, with chivalrous deference toward women and with innocent purposes. In all other civilizations women have been regarded as inferiors or have been admitted to social equality with men only in very limited domestic gatherings or temporarily, from a class in general disrepute. Even in a state of savagery, in which women often held special industrial, religious and political privileges, there was usually a sentiment separating the social pleasures of the sexes, even at general gatherings for religious, political or other purposes. In nearly all barbarisms, the harem idea has been prominent, and in the ancient or Oriental societies that may claim the designation of civilized, the essentially Christian conception of frank, innocent, social intercourse of the sexes has never been perfectly attained.

Possibly the reason for this is that Christianity has developed mainly among people quite suddenly advanced from a state of bronze-age savagery and subjected first to the savage idea of relative equality of the sexes; secondly, to the Judaic idea of domestic respect to women; and, thirdly, to the Catholic dogma of the incarnation through a woman. We must also recognize the direct influence on the early Church of the social example of Christ and the apostles, which was radical, even for Jewish standards. The persecution of the early Christians also tended to place them in the position of a large family, so that the women occupied very much the same position in society generally as in their own home.

Under these various tendencies, all acting in the same direction so far as the place of women in society is concerned, we can understand that the evolution of the modern social dance was almost a necessity. The sensuous delight of rhythmic motion could scarcely be imagined as dying out, the exhibition dance of Oriental type could not be tolerated, and the pas seul must develop into the combined dance of the two sexes.

Thus both the gambols of the peasantry on the turf and the amusement of the nobility in the hall tended in approximately the same direction. The development of musical technic both assisted in and was assisted by the development of dancing.

It is proper in a medical article to consider not only the purely physical but the moral aspects of any issue. Indeed, it is scarcely necessary to remind medical men that moral evils—using the word moral in its broad or restricted sense—almost inevitably result in physical disease, and not necessarily in the venereal sense. There has probably always existed a protest against the social as well as the exhibition dance. In visiting a patient, a theologic student (by the way, his bill remains unpaid, after three years), I found a mimeographed schedule of some twenty-five reasons against dancing. Most of these were reiterations of the well-known prejudices against this form of amusement, but they contained the statement that all churches, in all times, had opposed dancing. This statement is, of course, incorrect, certainly as applied to the two organizations known among us as established and, in a sense, divinely constituted, Churches, as opposed to other denominations equally good, but more modern and directly and avowedly of human origin. Still, there has always existed, since the development of the social dance in the Middle Ages, a decided opposition to it. This opposition is an expression of puritanism—a most excellent tendency if not carried too far—and rests upon two fundamental ideas: first, the conception that any occupation which is solely a matter of self-gratification and amusement is wrong; secondly, that dancing in particular involves a form of sexual indulgence.

As to the first of these conceptions, it has never been a teaching of the established Church as a whole, although it has been held by individuals both in the Catholic Church and among Protestant denominations, and has dominated some of the latter for certain periods. It is now generally abandoned.

The second of these conceptions is much more serious, and, if true, ought to abolish the social dance, without regard to religious convictions. Society cannot expel the non-Christian nor even the person who has no religion at all, but if it has a wholesome growth it cannot tolerate immorality. The argument on this point might

fill volumes. It has been tersely, if somewhat crudely, expressed by a Protestant clergyman in these words: "Dancing is hugging set to music." And the whole defense of dancing has been equally tersely stated in the cynical reply that the man who could make such a statement knew nothing of the pleasures of either. There is no question but that violations of decency in dress and in action are at times in evidence at dances, even of a supposedly high grade of society. Unfortunately this admission must be made for nearly every industry and amusement of civilized life. Society can no more be expected to discard one of its principal amusements because of an exceptional violation of propriety than can the industrial world be expected to throw out the telephone because it is often used in arranging for improper meetings, and return to the tedious method of correspondence by personally written letters or to give up the sleeping-car and the automobile.

Viewing the matter judicially, it must be admitted that the persons who participate in or who give their support to dancing, are, in general, of good repute. It is not even true, as has been claimed, that dancing is a favorite occupation of the dissolute. The outcasts of society are very human and they dress, eat, and amuse themselves very much as do those of reputable life, and, naturally, they include dancing among their amusements. Yet, generally speaking, such members of the community dance very little, very poorly, and in the main with a forced interest, in marked contrast to the enthusiasm shown by the better classes of society. In the so-called dance halls real dancing is seen about as rarely as real music is heard.

In short, the majority of the diatribes on dancing are based on very incorrect observation and are equally false in their statement of results. It happens that the majority of the instances of social disasters that I have personally encountered have been ascribable to acquaintance in distinctly religious organizations, the church choir easily leading in proportion to the numbers involved. It would be obviously unfair to attack the Church on this account, or even to hold that the social features of Church organization should be discontinued. It would be equally unfair to hold dancing responsible for the exceptional social misfortunes that are encountered among dancers. In fact, so long as men and women mingle at all and human nature remains as it has been so far back as history informs us, such disasters must be regarded as inevitable.

It has occurred to the writer that the large public dancing-schools of our large cities deserve to be considered in a serious and, perhaps, a favorable light. At comparatively small expense these furnish a place for amusement for a large number of young men and women of the working class. It is very easy to characterize them as cheap and low, and they certainly are not tempting to persons of the social order of our readers. But we must consider them from the standpoint of the wage-earner of very small means, whose home is usually not adapted to social entertainment and whose abiding place is very likely to be an unheated hall bedroom. Are such places socially desirable from such a standpoint or are they not? And by "socially desirable" must be understood not only what is ordinarily and somewhat snobbishly meant, but also the allusion to good manners and good morals which always ought to lurk in the background. Without having been able to

give the matter close personal study the writer is inclined to the belief that most such places are socially desirable with the qualifications made. In the first place, they are too public to conceal any overt violation of the rules of decency. In the second place, external cleanliness and good conduct are usually not only compelled by the management, but by the general opinion of those present. Offenders are either not admitted or are ejected. Doubtless they can seek their level in lower places, but so far as opportunities for observation go, the writer is convinced that there are very few dance halls in this sense for those who are not physically and morally clean, and that such as exist use the dancing as a mere subterfuge. It is very easy to criticize the ordinary, cheap public dance hall by the standards of a more fortunate social class, to ridicule dress and manners, and particularly the etiquette which is less elastic and more formal in many ways than that of the critic. It is also easy to say that the participants might better be at prayer-meeting, at the Y. M. C. A., at more or less offensively patronized girls' clubs, at free lectures, night schools, libraries, or even in bed. But, except in some externals of costume and speech, the girl behind the counter is very much the same as the lady in front of it, and the young man on wages of eight or ten dollars a week has about the same gregarious nature as the professional man or merchant. True social life must be spontaneous and independent, and it must amuse. And just as the poor are the same as the well-to-do in their craving for society, so, I believe, they may be equally trusted to keep that society in the main decent and well ordered. When we stop to consider what these young people would do and where they would be if it were not for the public dance hall, and when we consider that their somewhat peculiar social customs have the same foundation in good sense and good morals as those to which our readers are more accustomed, it may well be questioned whether the public dance hall, with a very little help in the right direction, may not be made a powerful influence for good.

One thing at least should be said for these institutions. With very few exceptions those in charge have taught graceful and dignified dancing and have not indulged in the grotesque antics and freak methods of holding partners that have crept into the schools for the more fortunate youth.

From the fourth reader to the work on hygiene we have been instructed in the vicious effects of the hot, stuffy air in the ball-room, laden with dust and germs, the evil influence of the intense excitement and the inordinate physical strain and the curtailment of sleep and the tendency to take cold from exposure after overheating.

Under modern conditions these purely physical evils of dancing have been materially reduced. The free muscular movement introduced some fifteen years ago is very different from the mincing steps of the past generation, and has demanded a large, smooth surface, which cannot be improvised in any but the largest homes. Even canvas is regarded with disfavor, and any dance to be thoroughly successful, must take place in a hall of good dimensions, with a polished wooden floor, and with a free ventilation to secure an endurable temperature. Unless the conditions are so peculiar that every participant realizes that there has been gross mis-

management, the modern ball-room cannot be hot or stuffy or dusty. On the contrary, dancing is, for practical purposes, a form of outdoor exercise, and in the summer most dances are held literally outdoors, in buildings that are little more than floor and roof. Even the danger of taking cold from exposure to drafts during perspiration is exaggerated, and many persons, dancers or otherwise, find that so long as they bathe frequently and are in general good health, they may expose themselves to all sorts of vicissitudes in fresh air without taking cold.

As a rule, dancers learn to protect themselves with outer wraps so as to avoid taking cold, and, indeed, this pathologic process is not so much a matter of orthodox medical belief as formerly.

It is very questionable whether dancing involves any more excitement or excess of physical strain than other forms of exercise. Even the trespass upon sleep is to some degree excusable by the fact that those who dance because they consider it a matter of social obligation, or to show that they are not superannuated, usually crowd the floor till midnight. It is, indeed, a common saying that after midnight there is the best dancing because those who remain dance from love of it. Unquestionably, many dancers carry the matter to an excessive degree, unduly fatigue themselves, lose needed sleep, and run many foolish risks. Unquestionably, too, old men with heart disease and young women with consumption, those with movable kidney not properly supported, those with inflamed appendixes and pelvic disease, incur special risk on account of the pathologic state.

Like every other form of amusement or exercise, dancing should be indulged in temperately, and with regard to individual conditions. Speaking generally, real dancers, that is, those who dance for love of the sport and not because they imagine that it gives them social prestige, or because they seek the semblance of a caress or for any other unworthy reason, are a remarkably healthy lot physically and mentally. We must not forget that for busy, sedentary city dwellers of moderate means and large duties, dancing is about the only form of pleasurable exercise available in winter. The person of leisure, who can move to a warm climate or who can even enjoy his leisure in the daytime in a cold climate, has plenty of fresh air exercise at his command. But for the person whose days are full, most of these are out of the question or can be had only at the expense of danger or in solitude, or, at least, without the element of enjoyment.

Thus it is not surprising that among the dancers are to be found men and women of mature years and those with heavy responsibilities of a business, professional or domestic nature. Even the small talk at dances is by no means so frivolous as might at first be supposed. Problems of philanthropic work, religious and scientific discussions, questions as to literary work or advances in art, even technical medical discussions between physicians of opposite sex are included in the drift of conversation, actually heard on the ball-room floor. Dancing, like every other art, has its *esprit de corps* which draws together persons of very different age and habits. Not only do older men dance with very young girls, but grandmothers may be sought as partners, while clumsy though pretty girls have ample time to rest.

SOME CURATIVES AND DOSES.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

SINCE the day of Blackstone's expositions, certain fundamental principles of common law have been universally recognized as expressive of the basis of human right and justice. Despite a thousand variations of theological forms of dogma, the elements of religious principle are simplified to the unit of the Golden Rule. While a wide world's diverse invocations to Deity can never be authoritatively compiled, yet Christ compressed the worship of human petition into the simple scope of the Lord's Prayer. Approaching next the marvelous province of Medicine as the "Healing Art," the greatest agency of cure, under all tests, is comprehended as the restorative effectiveness of simple antisepsis for the human body.

What a mental and moral respite of relief might greet thousands of our younger practitioners, if they could or would for awhile pigeonhole their written notes of labored lectures so interestedly listened to on college benches; and also retire for an unfumbled rest upon shelves behind glass doors their voluminous text-books on Theory and Practice of Medicine, so lumbered with copied descriptions of hundreds of phases of kindred physical manifestations, each designated and dignified as being a diagnosed disease, and these altogether padded with a thousand varieties of pharmaceuticals suggested as contributions to the "indicated" routine to be rotated along the course of individual cases that survived the tussle. And what then? In the light of actual practice re-study the principles of applied physiology in its simplicity as the common machinery of health—its embarrassments as the rudimental incident of disorder or disease—this in conjunction with the simple code of timely antisepsis as the natural relief from burdened or distorted function and consequent illness.

The majestic logic of the Golden Rule—the simple relevancy of the Lord's Prayer—appeal with no voice of equivocation in the comprehension, the treatment, the reciprocal relief of every problem of human situation that touches the lifetime of the conservative physician. If we apply the beneficent codes of the Golden Rule and of the Lord's Prayer to the humane management of every phase of illness, we will rise purified and strong in the kinship of skill that recognizes the Creator in the mastery and mystery of human well-doing. Enter the sick-room and thoughtfully study the striving situation of disabled human nature. There appeal to us, not resort to a thousand manufactured drugs on sale, but the beneficent adaptation of elementary principles for restitution of unbalanced functions. The physician must carry the applied religion of his profession outside the pew where God appoints his mission to the world. And so we get down from the imagery of books on disease, and seek the level of human conditions. Inasmuch as "ghosts" are the shadow pictures of the human mind, like dream-visions of over-strenuous imaginations, with their adjuncts sometimes of a degree of aberration—so likewise the multitude of imagined diseases that throng the multiple perceptions of confusing theorists count heavily against the benefits of a plain understanding and the advantages of the more comfortable way. We therefore reach for our higher planes of human service. Are there apt analogies with which to elaborate this meritorious doctrine of

the physician's mission of spirit? By the Golden Rule we are always to consider ourselves put in the place of the sufferer. We are to do as we there would be done by. In the application of the Lord's Prayer we recognize the immortal element transmitted to our professional care by the Creator—and we honor this sacred charge with the spirit's reverence. As commissioned messengers to interpose between health and disease, between life and death, we shall contribute nothing at variance with the Divine Will towards His creatures. We are to supply the sick with the comforting restoratives of daily nourishments. We are to yearn for forgiveness for every trespass of privilege or of failure in judgment and sense of duty. And we would aim to not be led into the temptation to burden the suffering one with physical or mental oppression, nor with repletion of drug medications, especially by those whose "active principles" may accumulatively and subtly tend to slug the depressed vitality along the striving way of the patient. And, for withal, to God belongs the kingdom, the power and the glory of every gracious recovery with which our ministry is blessed.

A straw may show the drift of the atmospheric motion. I came across such a "straw" to-day. In describing how lamps eat the life out of air—the author meaning the effects in a room of burning kerosene lamps, gasoline gas or filthy city gas—which in the process of burning produce poisonous carbonic acid, the same eventually causing six injurious conditions, namely: blood partially stagnated; muscles to feel tired; heart to act slowly; digestion to delay; headache through clogging of the brain; catarrh of the nose, throat and air passages. There we are. One cause and six or nine conditions listed in the learned text-books as so many diseases. Therefore, six doctors may be called to these cases, and who will naturally set-to with approved combinations of drugs for threshing out the differently located symptoms of each class of case—whereas but one true remedy is needed to cure all together, namely: oxygenation of the breathing air—inasmuch as the entire round of symptoms cited is one and the same disease—de-oxygenation of the blood. If we turn to the text-books, we there find fifty or more drugs listed for combating stagnation of blood, for muscle soreness, defective heart action, impaired digestion, headache, catarrh of throat (pharyngitis), and of air passages (which includes laryngitis, bronchitis, possibly pneumonia); whereas all are the one unit of disease appealing for the unit of true remedy, the antiseptics of pure air to render the blood sanitary and curative. An appropriate drug treatment can be always defended, but instead of a course of numerous drugs, the relatively single therapeutic that actively assists antiseptics is better treatment and more kindly than a conglomeration that complicate the physiological processes necessary to recover normal equilibrium of the system.

At this salient of our present study I opine that I'm expected to pay a passing bow to the modern bacterian drift of much-phrased pathology. In no science are there so many questions unsettled as in medicine. Many modern investigations into the kaleidoscope combinations of bacillian or bacterian changes in health and in disease, also of the chemico-physiological properties of digestion, nutrition and de-nutrition back to waste-transformation, are opening more arenas of

questions and mysteries than any man living, however scholarly and confident, will ever solve. Hence, we are safest if we keep close to the simplicity of nature's modes which are plain to understand. It is not known that bacterian forms have any material agency as causes of diseases, from the radical and overlooked fact that diseased conditions generate the bacterian development and dispose of their destiny. The confusing and quite endless changes in bacterian forms unsettle rather than settle the problem about their identity proving the genesis of the disease, or of its certain mode of prevention or cure, as always contemplated by practical medicine. The varieties of these ferment-forms, or microgerms, as observations of their nature are extended, appear to be constantly splitting and subdividing by natural process of their destiny into other forms, without any elective law of their own for direction—doubtless modified or varied by existing degrees of health or lack of health—in other words, by tone of systemic conditions. These circumstances deserve our consideration when we were asked to pin faith to bacterian form. It is not settled that a micro-organism destroys the red corpuscles in disease. On the contrary it is a natural probability that with the dying process of the red corpuscles, while circulating in the blood vessels, the bacillus or ferment cell is evolved into activity until the dead matter or globule is eliminated—whether by the resolution of an inflammation, or by an anthrax, or carbuncle, or abscess, or by the flame of a fever (no difference by what name), or by the defluxion of a dysentery.

It is an unsettled question as to why various diseases, rheumatism for instance, would cause abnormal increase of the white blood corpuscles. But there is natural probability that excess of white corpuscles and dwarf uncolored corpuscles may result from insufficiently vitalized, non-assimilated, perhaps also non-assimilable nutritive cells, passively floating with the blood to be retransposed. The white corpuscles are said to be protoplasm. Then protoplasmic material and non-colored or non-oxydized corpuscles dwarfed in their vitality or enervation, and behaving like the albuminosis in the blood, constitute in themselves a ready media for bacillian ferments and toxic irritations consonant or connate with various diseases. A mass of badly aerated food material is a mass of non-vitalized material, can impart no vivifying strength, is a stage in anemia, is a surfeit in the anemic subject, and needs to be gotten rid of by either a normal or abnormal process of elimination. Catarrhal matters and purulence are riddances of effete material through bacterian or fermentative or peptonic agencies. A "peptone" in pus, in urine, in fecal matter, in any emunctory product, means that microbial activities are allied to the transposition or yeasting of non-oxydized and deoxydized waste-matter—quite as naturally as digestive ferments prepare foods for transmission into the blood current.

It needs a well-balanced oxidation from perfect aeration to constitute a healthy and capable organism and function—even that of appropriating nutriment and for the elimination of worn-out nutriment with normal completeness. Albuminosis, therefore, are not aliens to disease, though allied to peptones or the final products of gastric digestion. Though not a settled question, there is strong probability that Nature may labor to rid herself of blood-embarrassments by a process resembling that by which she needs begin her nutritive functions.

The question is unsettled; but the most practical lesson that bacteriology is likely to teach is that of Nature's yeasting-out or fermenting-out processes in disease. And the anti-ferment for the blood is the oxygenation of pure breathing-air, constantly obtained, and beneficently provided by Providence free to all who will have it so. Good air is the natural health-giving antiseptic, the annihilator of decay and bacilli. Oxygen and ozone of fresh air are the only natural and safe bactericides, and the only certain ones adapted to the universal needs of humanity. After all and with all, the primary and supreme purpose of the healing art is curing the sick. But medical men have often learned that dependence on pharmaceuticals is not a sure way to success; that the chemicals administered had merely played a chemical drama of their own through the media of the human body, and then left the worn-out case to die. Many a reflective physician has had occasion to acknowledge that his patient grew worse more rapidly after the administration of drugs was begun. Successful medical usage is founded on the substrata of sanitary relations that can elevate the Art to a natural science instead of an elaboration of experiments on the human subject with a running line of new combinations of chemicals to be worked off on the sick. Pathology and therapeutics were never so broken up into figments of commercial guesses as at the present day. There are journals published pretensively in the interests of advanced medicine that seem studiously engaged in confusing comprehension and deepening delusions. The man who chases all the rainbows of "New Remedies" which salute attention in endless concourse is not likely to ever find a basis of his own whereon to confidently stand and verify the wisdom of a settled judgment of the simple potencies of Nature's needs in a disturbed state of health. The philosophy of the epigram of the famous Dr. Holmes to his class tritely applies: "To have twenty diseases for one remedy proves a higher order of wisdom than to have twenty remedies for one disease."

The great remedy for all diseases is antiseptis—decent and clean. Repulsive, stinking stuffs, because they claimed to be antiseptics, have been allowed by our kneeling profession to villify the air of too many hospital wards and sick-rooms. Carbolic acid and iodoform are fetid instances of abomination in the breathing-air of the sick and fainting sufferer. Pure air alone would have been ten times more reviving and curative. I was once called to a case in consultation. There had been a fall and bruise resulting in softening and suppuration. The room, the bedding, the clothing of the exhausted lady were unapproachable because of iodoform used upon her sore. Her blood corpuscles had been bleached till she was as pallid as a corpse. I said to the attending physician: "This lady has not had a breath of pure air in this room since her accident. She will not live a week longer unless we afford her decent breathing-air." But what can be done to help it? was asked. "Get rid of the stink indoors and then keep a window open to God's cleaner outdoor air," I replied. "We will dress that slough with an antiseptic that is without odor, is decent and civil and that will allow her to inhale air that can refresh her and so improve her narrow chances." How can you do it? was next asked. "I will cleanse that slough. Then pack it with boracic acid and subnitrate of bismuth, two parts of the former to one of the latter,

cover with absorbent cotton and bandage. Then replace the patient's malodorous clothing and bedding with fresh, also air out her room and make it fresh, and keep it so." In thirty-five minutes it was done and sanitary. I subsequently asked the doctor if there ever was any more bad odor in that patient's room? The reply was: "Never!" Eventually the lady died—but in decent room-air. A horde of new things have been invented to work their way upon the market as antiseptics for external use. But in my judgment there has been nothing produced that is superior to our good old-fashioned Sub Nitrate of Bismuth backed up by Boracic Acid—decent, cleanly, inodorous dressing for sores, skin eruptions, abrasions, burns, scalds, everything that calls for a dry, cleanly healer. New introductions may be interesting, but "old friends are best."

Throughout all experience, even when the basic antiseptic principle of true remedies was not specially recognized, the remedies that rose to large and permanent appreciation did so through antiseptic effects. Forty-six years ago there fortunately fell into my hands an old book—"Abercrombie on the Stomach"—wherein was narrated a series of cases, indigestion, inflammation, ulceration, even cancer of the stomach, treated medicinally by use of sub-nitrate of bismuth with special benefit. I was so agreeably impressed that I began at once the use of this pleasant remedy in my practice, administered internally in all disorders of the stomach and bowels. It has ever proved a neat and standard medium of comfort. When I find a high grade, pure article, I buy it by the pound, and always keep a supply in my "laboratory" of medicines. Administration by capsules is my convenient method. In cases of young children it is given in plain water. In the fermentive, burning sensations of the stomach that sometimes attend grippe, also when there is nausea or vomiting, each dose of the bismuth, five to ten grains, is mixed into a large wineglass of cold water and swallowed as bath for the lining of the stomach. In dysenteric symptoms, of latter years, I am disposed to reinforce the mildly antiseptic nature of the bismuth with a tang of salol in capsules. In the acute conditions of severe cases of typhoid fever, with evidences of inflammation of patches of the intestinal lining, with great soreness and distention of the abdomen, I have never found anything to equal the happy benefits of sub-nitrate of bismuth in ten-grain doses combined with powdered crystal nitrate of silver one-eighth or one-tenth grain each. If the pain is immoderate, a quarter to half grain powdered extract of opium should be added to the dose two or three times daily until relief of the pain is reached. The bismuth and the silver salt furnish the antiseptis and heal the inflammation. Nutrition and antiseptis go hand in hand in all fever conditions. I never baste a typhoid fever case down to the weary fad of "a milk diet." Soups, broths, soft toast, soft egg, scraped apple, gelatin, mashed potato, glass of hot milk, a swallow of tea or coffee or cocoa—something, and enough at reasonable intervals during day and night to prevent the case from being STARVED to irreparable exhaustion—and your patient is rationally helped to recovery. But the bowels? Why, gentle emollient foods passing along the intestinal tube assist Nature to clear "the scum" of disease and of medicinal sediment away from the bowel surface in a normal manner, and hence help to reach an

early cure. Perforation from ulceration! Bow thoughtfully to the possible—but don't, for God's sake, soften your patient's blood and tissues down because of lack of nutrition until the liability of perforation is more than doubled. I feed in typhoid to some solid, regenerative purpose. Even in hemorrhage I doctor, and I feed well-seasoned broths to sustain vitality. I lost a case of typhoid after childbirth in 1864—but can recall no fatal case since—though situations have been desperate.

Though fearfully abused in early years by its intemperate use, that old remedy, calomel, has held its place in medicine only because of its antiseptics. This merit was not thought of by the old-class doctors, but now we comprehend on rational grounds. "What fools we mortals" have been! In the fifties my preceptor administered his calomel in ten-grain doses for a starter, followed by "broken doses!" I doubt if he knew why—except that it was then the custom. I can recall one year when he lost more patients than I have lost in forty years—and his practice was strictly rural. The antiseptics of pure air never impairs vitality; but the antiseptics of drugs in excess may overwhelm. Excess of carbolic acid, excess of chloride of lime, have hastened many a death. Burning sulphur within reach of a patient's breathing-air has bleached out many a breath. Burning tar in the close room of a little diphtheria patient has smothered out life. All such sins, who can answer for them? The thought is repulsive—the thousands who suffered the slimy degeneration of gums by excess of calomel with consequent loss of teeth for all life that followed! Since I comprehend that calomel in its place is valuable for its antiseptics, I obtain results from one-tenth or one-sixth of a grain at a dose, according to age, repeated twice or thrice a day for only one or two days' service; and the handsome little tablets, the beautiful tiny granules of calomel are promptly discontinued. The edge of benefit should never be sharpened into a sword of harm. Our old sweet spirits of nitre has always been a grand remedy because of its diffusive qualities of antiseptics. On the same principle, how many thousands of nervous women have been relieved by a teaspoonful in water slowly sipped of comp. spirits of ether or Hoffman's anodyne! When we look along the lines of our good old reliables, we perceive in them the virtues of antiseptics. Take our tinctures, so prominently in vogue as far back as our text-books can hark. All antiseptic because compounded with alcohol—a natural sustainer of blood and tissues from decay. Any proof? Spend an hour again looking through the museums of medical colleges with their vast collections of specimens of morbid pathology preserved by alcohol. We calmly think it over. We administered our tinctures of barks, roots, blossoms, foliage, seeds, with unquestioned benefit to the sick; but every teaspoonful of the liquid preparation containing a half teaspoonful of best antiseptic alcohol. Was it the chinchona, the gentian, the camomile, camphor, cardamon, the anise, the special that won the race? Was it not largely the antiseptics of the vehicle or preservative by which was carried the properties sought to be administered?

There stands old quinine—bold and bald with service—so long and favorably employed as the standard antimalarial, modernly termed "bactericide." Quinine can

be such only because of its anti-ferment or antiseptic virtues. The crystals obtainable from other non-poisonous bitter barks, like the dogwood and the willow (salicin), would serve similar purpose because of similar antiseptic qualities. Certain of us have not forgotten the energy with which a prominent Southern physician argued in recent years that as a tonic and antimalarial, acetanilid was superior to quinine. If we admit that, we logically admit also that the febrifuge values of quinine abide chiefly in its antiseptics—since acetanilid very markedly demonstrates that anti-ferment quality of action in the system with minimum dosage of two grains each. All of our fine old-time aromatics or medical carminatives of the vegetable kingdom, so useful in nervous troubles and acute colics, are now recognized as standard antiseptics. We all remember that Egyptian mummies are dead bodies preserved in antiseptic spices—hence the moral, if spices are preservative to dead bodies, then spices are preservative to the living body both in sickness and in health. Carminatives did well and safely for our women and children in long past years. In proportion, as many lives were saved then as now, although strenuous commercialism is pressing upon us the gleams of many chemical substitutes. Business now means the sugared sop of perpetual supersedence—but it shows lack of medical consistency to be drawn away from the substantial, well-tested pharmaceuticals merely to endlessly experiment with the output of substitutes that are placed upon our desks as "the latest" rival. It would seem that every weed is now sought for investigation, and to add caption and chirp to new claims for adoption, but in nowise superior as remedies to be tested on our family of friends. Though we pray: "Lead us not into temptation" toward our fellow mankind, how disposed we are to turn about to deliver to our patients the new departures from the orthodox faith in medicines! I have before me a manufacturer's catalogue that names more than three thousand drug preparations to be put into other people's stomachs by doctors! Should we do it to enrich the stockholders? Or should we rather prefer to stand conservatively by our old standards—but correct our old habits of pressing upon patients the physical burdens of excessive dosage! It has been my own habit to try the effects of medicines upon myself before prescribing them for the sick. A few mornings ago a bustling "representative" of a pushing firm laid before me a sample of their specialty for grippe pains, neuralgia and rheumatism. As I was then suffering with rheumatic pains of the head, he urged me to use the sample and be cured. Accustomed to medicine, I took two tablets—the larger dose. Directions said repeat every two hours. It took me all day to recover from the depressed, numbing effects of that dose. On referring to the formula, I found that each tablet contained, besides other ingredients, one-sixth grain extract hyoscyamus—thus two tablets equaled one-third grain. Turning to Leonard's "Dose Book," the dose of extract of hyoscyamus is set down at grains 2 to 6, and of the alcoholic extract, grains 1 to 2. Where would I have been if I had swallowed such authorized doses as these?—and then repeated them? Turning next to "Squibb's Materia Medica," 1906 edition, the average dose of extract of hyoscyamus, Squibb, is set down at one grain, which is three

times more than I took the other morning at request of the obliging "representative." Another lesson. About twenty years ago I was called to a young woman suffering with neuralgia of the head. I had in my memorandum book copy of a prescription that I had used in previous years in the anthracite coal region—a hardy class inhaling virile atmosphere. I made a copy from this prescription, which contained quinine, valerianate of iron, and, as I recall, one-sixth or one-quarter grain extract of belladonna to each dose, made up in pill form. In those days I was yet inclined to follow the authorities. Leonard's Dose Book says that one-quarter to one-half grain is dose of extract belladonna. Squibb says that one-sixth grain of Squibb's extract belladonna is the dose. Wythes says one-half grain gradually increased to one grain is dose of extract of belladonna. Well, when I visited my patient next day she said that she had taken but one dose of the pills I had prescribed, and that the result was so distressful that if she had taken another dose she didn't believe that I would have found her alive. To cover my chagrin and surprise, I said: "Please give me those pills. I will visit the druggist who compounded the prescription to see what is wrong. I will give you other medicine instead. But to test these pills, I'll take one of them myself at once," which I did. Before I finished writing the new prescription I noticed that my mouth was becoming dry. As I repeated my instructions my articulation was thick. On my way home a tingling that presaged numbness crept over me, and my eyesight waned to half-blindness. I knew I was poisoned, but escaped serious alarm because the patient had lived out the toxicity of the pill she had taken the day before. Besides being dry, my tongue was numb and stiffened. Appetite drew down her shutters. I was not really myself till next morning. That experience settled me on the foolhardiness of mixing potent narcotics in medicine—let the authorities scribble what guesses they pleased. When I took these pills to the druggist, and stated the circumstances, he politely disclaimed all idea of any error, and affirmed that my prescription called for a proper dose. My own explanation is that his extract was double the usual strength—and therefore doubly dangerous.

The safety of our practice should be better guarded. There are too many dangerous drugs employed. We old-school doctors have been in the habit of prescribing much larger doses in many instances than were either necessary or wise. Overdoing is undoing. Unhappy symptoms after a dose of medicine detracts from the confidence of the patient and from the prestige of the physician. All medicines that either by excess of dose, or by elements of nature, unbalance the normal functions of the human system, carry with them harmful complications that would not confront us if we were wise enough to gauge our dosages to the normal assimilation of the individual subject. While the homœopathic habit of practice in the farther past has doubtless run too low a pharmaceutical gauge in acute diseases, our old-school habit has run from inconsiderate vogue an exorbitant and harmful overdosage of drugs. Fortunately for humanity, the newer school is coming upwards in the potencies of remedials, while the older school is comprehending the prudence of administering smaller and less frequent doses. Personally, I rebelled

against prescribing big or heroic doses twenty years ago—and that fact has not only increased the happiness of my professional life, but also with the comfort of safety has added to my years. For instance, acetanilid, Squibb says average dose is four grains; my custom is to not exceed about two grains, and that backed by a tang of salicin or quinine tonic. Another instance, benzoate of soda—Squibb says the average dose is fifteen grains. I do not exceed five grains, braced by a grain of salicin in capsule. Of the antiperiodic tonic salicin, Squibb says the average dose is fifteen grains. I never give more than two grains at a dose—and no man could enjoy better results. Squibb says the dose of salol is seven grains. Two grains is very satisfactory to me in the combinations with which I employ the remedy for its antiseptics. It should not be understood that I erase entirely all forms of narcotics from my remedies. But since my grasp of antiseptics has widened out I find little need of narcotics. For instance, an hour ago I awakened from sleep with the squeezing ache of a drift of rheumatism to the stomach. When I rose I did not resort to morphia, or aconite, or belladonna for a pain-killer. I took a moderate dose of salicylate of soda and of benzoate of soda together, mixed in water—followed by a tablespoonful of spirits frument—three antirheumatics we may claim; yet three antiseptics. In less than ten minutes I had the comfort of relief with no dangerous drug inside. In the rare instances of violent cramp or of violent neuralgia of the stomach with persistent vomiting, I do not hesitate to administer a hypodermic dose of one-eighth or one-quarter grain of morphia under the skin of the arm to break the tension of the pain-storm—after which the disabled stomach will be enabled to retain moderate doses of acetanilid and salicylate of soda and sub-nitrate of bismuth combined, given in capsule or mixed into water, to carry the case to recovery. Again, we have three antiseptics! Reverting to narcotics, in severe attacks of neuralgia of the head, and of sciatica, I sometimes have occasion to add to my analgesic or antiseptic combinations with salicin in capsule, for a limited number of doses, I add to each dose a granule of hyoscyamine amorphous, grain 1-250, for its soothing anodyne effects until the gnaw of acute pain has slackened its bite—after which the hyoscyamine is omitted. This dose of active principle is so small that it would almost seem like a nominal toy in therapeutics, but it helps without harm. Squibb makes the dose of hyoscyamine amorphous one-sixteenth grain; but I am satisfied with the smaller proportion. If the case is specially obstinate, two granules are safe for a few doses as exception. They are not the cure—they are the switches to side-track the pain-storm while Nature may get in her repairs. There must be diplomacy on occasion in medicine—diplomacy, not a bludgeon of browbeat.

1726 North Twenty-second Street.

An ointment for boils is recommended by Bulkley: *B* Carbolic acid, gr. 5-10; fl. ext. ergot, 3ss; starch 3ij; zinc oxide, 3ij; ungt. rosae, 3ij. This is spread upon the centre of a moderately thick layer of absorbent cotton, several times the size of the inflamed area, and secured with strips of adhesive plaster. The dressing can be left on for ten to twelve hours.—*Internat. Jour. Sur.*

THE MEDICAL MANAGEMENT OF CHILDREN.

BY M. E. FITCH, M. D.

MANY authorities consider that hysteria is very infrequent in children seldom conforming to the clinical type; for rarely is the entire picture seen of anesthesia, palsy, convulsion, and reversal of the visual fields. Hysteria usually means a convulsive attack, confined, or almost confined, to the epileptoid stage. Burr has never found reversal of the visual fields in children, and but a few times in adults, and almost as often in non-hysterical persons as in hysterical. The most frequent manifestation of hysteria in children after convulsions is palsy or contraction of one or more extremities and pseudo-Pott's disease. It is often difficult to diagnose the hysteric from the epileptic fit, and to diagnose in haste is most dangerous. Consciousness may be absolutely lost in hysteria, while in rare cases a true epileptic fit may occur without loss of consciousness. Hysteria does not preclude epilepsy, and both may occur in the same patient. The common error is to confound hysteria with pure emotionalism or downright fraud, for hysteria is too much used as an intellectual pigeonhole for all dramatic and remarkable manifestations of disease, the clinician being satisfied when he has given an illness a name. Hysteria has as definite a natural history as nervous syphilis or phthisis. It is common for many children to do very remarkable things and relate strange tales of suffering to get what they want, to be petted and spoiled; but this is not hysteria; it is simply mendacity. Again, in genuine hysteria, it may be difficult to separate the real from the pretended in the symptomatology.

Hysteric children are often precocious, extremely susceptible to suggestion and very helpful in aiding the physician to find the symptom he wants. Burr, as well as other neurologists, has more than once examined a child for anesthesia and failed to find it until the patient discovered what was wanted. The most difficult diagnosis probably is between organic brain disease and hysteria, for no organic disease is more likely to be accompanied by hysteria than tumor of the brain.

In regard to the reversal of the color fields as a symptom of hysteria, de Schweinitz says that, in the first place, it is very difficult to satisfy one's self of the accuracy of observations with the perimeter in the examination of hysterical and nervous patients; either by suggestion or because of retinal tire, or from other reasons not pertinent or present, but connected with what is known as adaptation of the retina, reversal of the color fields is not infrequent, be very slow to accept this symptom as pathognomonic of hysteria. With other symptoms it is an important factor and worthy of study; thus, in connection with optic neuritis of organic brain disease, it is sometimes very difficult in the early stages to say whether or not a flush of the optic nerve, which is so commonly present, is the first stage of optic neuritis or whether it is non-significant of intra-cranial disease. In de Schweinitz's opinion, statistical information would be better if the aphthamic diagnosis in so many cases was not obscured by unnecessary technicalities; it would be better to say, for example, that the disc is flushed or congested, but that there is no actual neuritis, than to burden reports with ill-defined terms. That organic brain disease may

mimic hysteria is as well known as is the reverse of this statement. De Schweinitz has reported a case examined at the request of H. C. Wood, who had all the symptoms of hysteria, and Wood was inclined to consider the patient hysterical, but stated that he reserved his diagnosis until an ophthalmoscopic examination had been made. This examination revealed extensive optic neuritis; the patient subsequently died, and at the autopsy well marked basilar meningitis was found; yet all the symptoms simulated hysteria. Therefore, in all of these cases ophthalmoscopic and perimetric examinations are of the utmost importance, and, if they are positive, their definite aid in diagnosis is most vital.

In a number of cases of hysterical manifestations in children there are found relics of a past organic affection, perpetuated by auto-imitation; these manifestations are largely the involuntary, constipation, diarrhoea, and prolapse, coughing, persisting from sheer auto-imitation long after the original morbid condition had returned to normal; hysteria in these cases is apt to be overlooked, but thus cure by suggestion reveals the hysterical nature of many cases of enuresis. Bruns has observed 144 cases of hysteria in children in the course of seventeen years of practice as a neurologist; they form 2 per cent. of his total clientele, and about one-fifth of his total hysterical patients, but neither he nor Thiemich will admit the possibility of hysteria occurring in infants, for his youngest patients were three years old. The hysteria was always more severe in boys, and only 60 per cent. of the total 144 cases were in city children. Curiously enough, the more severe types were in country children, but his practice embraces a large country district, and neurasthesia is not rare, especially among farm hands. Severe hypochondria is much more frequent than in the cities, and melancholic conditions are often encountered in small, remote towns. Attacks of chorea major are almost specific for hysteria in children; Thiemich has had thirteen such cases and fifteen of astasia abasia; the manifestations of hysteria here are generally more severe than in the hysteria of puberty or of adult life, although the classic signs of adult hysteria are seldom present. Cutaneous anesthesia was noted only in three of the children, from thirteen to fifteen years old. Any unusual or dubious morbid manifestations should suggest the possibility of hysteria, whether the patient is an adult or a child.

Eighty-five out of ninety-five children were cured; in seven the condition persisted unmodified, while in three it was improved, a proportion of 90 per cent. cured, a much larger percentage than is usually obtained in adult hysteria. For the treatment Thiemich speaks of the "anti-hysteric atmosphere" which prevails in his establishment. The "hysteria bacillus" soon succumbs in that unfavorable environment, its downfall aided by "systematic neglect," or "Ueberrumpelung," that is, "taking by surprise." The latter is applied in the paralytic cases, and consists in making aggressive suggestion, hurrying the child along, giving him no chance or time for morbid ideas or memories. Other cases were cured by a cold douche, others by electricity, suddenly applied, but the main point is to act quickly, to follow up the first gain, and to complete the cure in a single sitting.

The modern view best sustained is that hysteria depends essentially upon metabolic or nutritional changes in the cellular elements of the central nervous system,

in consequence of which there may result alterations in function and changes in relation, whence arise the varied and protean symptoms of the developed disease. Further refinement in staining methods, in which there has been so remarkable an advance in the past decade, may possibly detect changes in nerve cells at present unnoticed. Though we retain the name, which perpetuates the original erroneous conception of its pathology, we have learned that hysteria respects neither sex nor age.

The first thing that may attract attention to a rachitic child is that it has a rather large head; on examining more closely the head is found rather square in shape, while the child is emaciated, but not markedly so; it is anæmic, and has poor teeth. Examining the chest, the sternum is found unduly prominent, and the transverse diameter of the thorax at the upper part is very small. The child generally has a very large, distended abdomen, the umbilicus is prominent, the legs are bowed, and the joints are large, particularly in the wrist joint, but it is almost as well marked in all the articulations. Rickets is a disease that develops probably during foetal life as well as during post foetal life; but the cases that have been observed in the foetus are very rare; thus, with the exception of two or three cases in which the child was born with rachitic malformations, Forcheimer has not seen any of these cases. But rickets develop usually before the sixth month of life; occasionally it develops later. When it develops after this, there are generally manifestations, while there have been described cases of so-called "acute rickets," but true rickets is always a chronic disease, and acute rickets belongs to a different class of diseases. Rickets is a disease that takes a long time for its development, and a long time to run its course, and any malformation of bones that begins after the third year is due to something else—generally to syphilis. These two diseases are to be distinctly separated from each other, being two entirely different processes. The essence of rickets is a deposit of bone or of bony substance where it ought not to be, and, perhaps, an absence of bony substance where it ought to be, while the syphilitic process is usually a disease of bone after it is developed. In a rachitic bone ossification goes on from the cartilage directly; the cartilage cells are converted more or less directly into bone, without the intervention of osteoblasts, while in the normal growth of bone from cartilage the intervention of osteoblasts is needed. In older books on histology normal ossification is described as taking place from cartilage cells directly. The man who made the study of this process was Kolliker, and this view went unchallenged until the same observer offered a new description. The error was committed because this writer was all this time making his studies on rachitic bones; it was very difficult for Kolliker to get normal bones. Children of parents born in foreign countries are more liable to have rickets than are American children. The colored race is an exception to this rule, as nearly all colored children are rachitic. While a child may be anæmic, it may possibly be very well nourished, or very fat, but look at the child and you see that it is not perfectly well. The mother reports that the child catches cold very easily; the child has had a great deal of trouble with its teeth, directly or indirectly. Inquire a little more definitely into the trouble, you will learn that the child is constipated, but that the constipation very frequently gives

way to diarrhoea. Such a child is sixteen or eighteen months old, and it does not walk; it did walk, perhaps, but it has stopped walking, and it sweats a great deal, especially about the head. This sweating is so profuse as to wet the bed clothing, or even to soak through the pillow. It is not noticed so much when the child is awake as when it is asleep. The child has a voracious appetite; it may eat as much as a grown person or more, and it has an avidity for salt, it not being uncommon for a child with rickets to get its thumb into a salt cellar and eat all the salt. Understanding these symptoms, place the bronchial catarrh where it belongs, for the child has bronchial catarrh or has trouble with its bowels because it has rickets. For its bronchial catarrh nothing more than a little expectorant is required. For intestinal catarrh do not give the child bismuth and salol alone, but go for the cause of the trouble. The changes in the head that are characteristic of rickets begin before the sixth month, depending especially upon the deposit of too much bone about the centres of ossification. There are two of these upon the occipital and two upon the frontal bone. From the prevalence of this disease in Germany, the French call the Germans "têtes carrées," or square heads. The anterior fontanelle is not closed, but is wide open, and perhaps a slight degree of hydrocephalus exists, and it not infrequently occurs in rachitic children. Where the child rests its head on the pillow, the sweat accumulating loosens the hair, and a bald spot results on the back of the head, but this is not characteristic alone of rickets, for many children rub the hair off the backs of their heads. Except in the colored race, the development of craniotabes, or small soft spots in the cranium, is rare. Palpate a head with this condition present, and there are found spots that are perfectly soft, places where you could run your finger through into the brain without much difficulty, and this is absolutely characteristic of rickets. Again, a rachitic child cuts its teeth very late; the child generally begins to get teeth at seven or eight months; then they stop coming. Or the child may become rachitic at the fifth month, when the dentition is delayed for many months. In delayed dentition always suspect rickets. Changes of the shape and form of the bones of the jaw, both the superior and the inferior maxillary bones being affected, have been noted, and another interesting condition has been described in the mouth, being simply a malposition of the teeth, owing to which the molars do not come down squarely upon each other, but come down upon each other when the jaws are closed in such a way that the sides instead of the crown surfaces rest together. If the child has been attacked after the sixth month of life, prominent symptoms are found in the thorax and extremities. In the long bones the characteristic lesions show themselves about the epiphyses, and the result is that the epiphyses become enlarged; the bony substance becomes more or less softened, or, rather, more or less brittle, enlargement of the epiphyses, enlargement of the places of ossification, and in the next place subperiosteal fractures. Malformations more or less due to bending of the bones are found, but this bending which we see in cases of knock knees and the like, is usually due to sub periosteal fracture. The first change in the thorax is the enlargement at the junction of the cartilages with the ribs, giving rise to "the beaded thorax." Nurses have the pernicious habit of picking up a child by catching it

under the arms; the result is a malformation of the thorax that is more or less characteristic of rickets. The sides of the thorax become flattened, and in these children, just below the arms, a place can be found into which your hands will fit. The relative diameters of the chest are changed, making the "chicken or pigeon breast," absolutely characteristic of rickets. In addition to this, where a child has a bronchial catarrh or a pneumonia, the ribs being soft, this peri pneumonic frurrow becomes the permanent form. The pelvic bones are flattened out as a result of the weight of the organs within the abdominal cavity, and possibly as a result of the pressure on the acetabula when the child attempts to walk, giving rise to the rachitic pelvis. The abdominal cavity is enlarged in one direction, but smaller in another, but as it must still hold all the organs, hence "the big belly or rickets," due to change in the diameters of the thorax, to the malformation of the pelvis, and to the distention of some of the organs of the abdominal cavity. It has been claimed that the liver, spleen, and other abdominal organs are enlarged, but this is not necessarily true. Rickets produces bow legs by causing these sub periosteal fractures. If the fracture of the bone be on the inside of the thigh the fracture will cause the knees to go close together; if the fractures happen to be in the outer side of the thigh they will cause the opposite deformity.

A rachitic child will come out from the disease more or less disfigured unless it is carried off by some complicating disease, such as catarrhal pneumonia and intestinal catarrh. Any disease will have a fertile soil in a ricketic child, so that the morbidity of rachitic children is great, and their mortality equally great. Rickets makes these diseases fatal, although rickets is not a fatal disease in itself.

Gerhard has said that a physician who allows a rickety child to come out with horrible deformity ought to be criminally prosecuted.

The nature of the food and the quality of the air are two elements in the treatment, but this is a difficult problem among the poorer classes, but it ought not to be difficult in the country. Have the patients live in open air; send them out in the day and in the night, for the night air is just as good as the day. Avoid the carbohydrates as much as possible, and stick to nitrogenous foods, giving things easily digested. Add salt to every article of food; if the child gets milk, it must have salt added to it; if it gets broth, the broth must be salted. By the way, broths made from beef or from veal are excellent for these cases. Take care of the skin, for these children sit down a great deal, and the cutaneous respiration is interfered with, and the chances are that there takes place in these children an excess, a damming up, of carbonic acid gas, so stimulate the respiration; for this purpose Forchheimer gives salt baths, using the ordinary rock salt that can be obtained from any fishmonger. Take a handful of salt to a bucket of water and bath the child in this every day; give it a good rubbing after the bath.

The various preparations of the phosphates and all the preparations of lime and the so-called bone formers are not worth much in the treatment of rickets; while they are recommended, you get no especial results from them. The only way to get salts into the system of a rachitic patient is by giving common salt; for this reason give salt with the food and salt with the bath.

The chances are that there is always enough phosphoric acid not completely satisfied in the system to seize upon any sodium that is admitted. Cod liver oil and phosphorus are sheet anchors in treatment.

A child that is badly nourished and anæmic will do very well on cod liver oil; employ Kassowitz's treatment, namely, phosphorus, and the results obtained fully justify us in using this remedy in any case. Forchheimer recommends: Phosphori, 0.01; solve in oleo olivæ, 5.00; sacch. albi; pulveris acaciæ, aa, 10.00; aquæ, 75.00 Dose: One-half to one teaspoonful three times daily.

In this connection the study of diet is excellent; Griffith advises that the infant be weaned at from the age of ten to twelve months, gradually, only one bottle of food being given at first, and this of a strength less than mother's milk, thus enabling the child to accustom itself to the new food. The number of bottles and the strength of the mixture are increased gradually until at the age of a year the food should consist of milk slightly diluted. The child should be weighed systematically twice a week. After the child has been weaned entirely, and has become accustomed to the new artificial food, add to the food a concentrated amylaceous substance such as barley jelly or arrowroot jelly. The proportion of two rounded tablespoonfuls of barley flour or arrowroot to a pint of water, cooked in a double boiler for ten to fifteen minutes, makes the proper strength, added to the food in the proportion first of one and later of several teaspoonfuls to each bottle, the addition to be made while the cereal substance is still hot. The number of feedings during this period has been reduced from three hours to three and a half or four hours, depending on the requirements and habits of the child. The amount of nourishment should be from 8 to 10 ounces at a feeding. After the first year Griffith advises the following diet:

Diet from one year to eighteen months: Breakfast (6 to 7 A.M.). 1. A glass of milk with stale bread broken in it, or one of the numerous good breakfast foods on the market. 2. Oatmeal, arrowroot, wheaten grits, farina, hominy grits, etc., made into a porridge and well cooked, and with the milk mixture in use poured over it. 3. A soft boiled or poached egg with broken bread in it, and a glass of milk.

Dinner (1.30 to 2 P.M.). Bread moistened with dish gravy (no fat), beef tea or beef juice; a glass of milk. 2. Rice or grits moistened in the same way; a glass of milk. 3. A soft boiled egg and stale bread thinly buttered; a glass of milk. Rice, sago or tapioca pudding or junket, in small quantities, as dessert with any of these diets.

Fourth meal (5 P.M.). Glass of milk or some bread and milk.

Fifth meal (9 to 10 P.M.). A glass of milk.

Diet from eighteen months to two years: Breakfast (7 A.M.). 1. A glass of milk with a slice of bread and butter or a soda, graham, oatmeal or similar unsweetened biscuit. 2. A soft boiled egg with bread and butter and a glass of milk. 3. Porridge, as described in the previous list. Second meal (10 A.M.). Bread broken in milk. 3. Bread and butter or a soda or other biscuit, with a glass of milk. Dinner (2 P.M.). 1. Boiled rice or a baked potato, mashed and moistened with dish gravy or beef juice; a glass of milk. 2. Mutton or chicken broth with barley rice in it; some bread and

butter and some sago or rice pudding made with milk. 3. A small portion of minced white meat of chicken or turkey, or rare roast beef, beefsteak, lamb, mutton or fish; bread and butter; a glass of milk. Fourth meal (5 P.M.). 1. Bread and milk. 2. Bread and butter and a glass of milk.

Diet from two to three years: Breakfast (7 to 8 A.M.). A small portion of beefsteak, with oatmeal, hominy grits, wheaten grits, cornmeal or other cereal porridge with plenty of milk. 2. A soft boiled egg, bread and butter and a glass of milk. Second meal (11 A.M.). 1. A glass of milk with bread and butter or with a soda or other biscuit. 2. Bread and milk. 3. Chicken or mutton broth. Dinner (2 P.M.). Roasted fowl, mutton or beef cut fine; mashed baked potato, with butter or dish gravy on it; bread and butter. As dessert, tapioca, sago or rice pudding, junket or a small quantity of raspberries, peaches, grapes without seeds, orange juice or of stewed apples or prunes. Supper (6 P.M.). 1. Bread and butter. 2. Milk with soda or similar biscuit, or with bread and butter.

Diet after three years. Foods permitted: Meats: broiled beefsteak, lamb chops and chicken; broiled liver; roasted or boiled beef, mutton, lamb, chicken and turkey; broiled or boiled fish; raw or stewed oysters. Eggs: Soft boiled, poached, scrambled, omelet. Cereals: Light and not too fresh wheaten and graham bread, toast zwieback; plain unsweetened biscuit, as oatmeal, graham, soda, water, etc., hominy grits, wheaten grits, cornmeal, barley, rice, oatmeal, macaroni, etc. Soups: Plain soup and broth of nearly any kind. Vegetables: White potatoes, boiled onions, spinach, peas, asparagus, except the hard parts, string and other beans, salsify, lettuce, stewed celery, young beets, arrowroot, tapioca, sago, etc. Fruits: Nearly all, if stewed and sweetened; of raw fruits, peaches are one of the best; pears, well ripened, and fresh raspberries, strawberries, blackberries, grapes without the skin and seeds, oranges. Desserts: Light puddings, as rice pudding without raisins, bread puddings, etc., plain custards, wine jelly, ice cream, junket.

Foods to be taken with caution: Kidney, muffins, hot rolls, sweet potatoes, baked beans, squash, turnips, parsnips, carrots, egg plant, stewed tomatoes, green corn, cherries, plums, apples, huckleberries, gooseberries, currants.

Foods to be avoided: Fried food of any kind; grid-dle cakes; pork; sausage, highly seasoned food; pastry; all heavy doughy or very sweet puddings; unripe, sour or wilted fruit; bananas, pineapples, cucumbers, raw celery, raw tomatoes, cabbage, cauliflower, nuts, candies, preserved fruits, jams, tea, coffee, alcoholic beverages. Milk is the chief article of diet throughout early childhood. Broths are serviceable as food only through the cereal addition with which they are thickened. Children should not be fed too frequently, nor should they be given too much starch, as that is a frequent cause of illness. The age and need of the child, rather than the teeth, should be the guide in determining when the giving of meat may be commenced. No candies, cakes or other such articles should be given and no food should be allowed between meals, although, if there clearly be real hunger, a small glass of milk may be given at times, but even this is to be discouraged as a custom. During very hot weather the diet should be

reduced greatly in variety and in amount, and the child of two years had better be put temporarily on the diet of a child of one year.

There is always one precaution to be taken in treating the constipation of babies: never fail to examine the mother's milk. Question the mother closely, to see if the child nurses a long time before it is satisfied, and frequently falls asleep during the feeding. In 107 autopsies reported by Holt, the capacity of the stomach of the infant was found at one month to be about one fluid ounce, and it increased one fluid ounce in capacity for each succeeding month up to the sixth, when it was found to be six ounces. After the sixth month the rate of increase was half an ounce a month. These results confirm the generally accepted opinion; when the child takes a larger quantity of food at a time than these figures indicate to be physiological, it over-distends its stomach. One breast should give enough for a nursing, and when the child empties one breast and is not satisfied, the mother's milk is not sufficiently nutritious; the mother's milk normally should have those constituents which not only nourish her infant, but also cause a movement of its bowels once daily at least. The cause of the trouble may lie with the mother and not with the child; see that the mother's milk is made more nutritious. If she has been nursing the child but four months, this is easily accomplished; but if she has been nursing nine months it would be impossible. Remember that good milk cannot be produced with bad hygienic surroundings and a disturbed mind, and a woman is sensitive during lactation; if a woman nurses her child while in a rage the child is liable to convulsions. Secure good hygienic surroundings, remove all causes of irritability of mind, and to increase the mother's power of assimilation; you may have good effect by administering brown stout or an extract of malt. The mother should be encouraged to take freely of highly nutritious and easily digested food; mastication must be thoroughly performed, and she should retire early and drink freely of milk. Good cow's milk is a most valuable food during lactation; but some women will tell you that it makes them bilious to drink milk; if so, ask them to observe how the baby takes milk. When milk is taken into the stomach in great gulps it forms a solid mass of coagulated casein, which it is impossible for the gastric juice to digest, and these so-called bilious attacks are attacks of acute indigestion. The mother should imitate her baby, who takes its milk in very small quantities, sipping it; thus, instead of being caked into large masses in the stomach, it coagulates in thin flakes, which are easily acted upon by the stomachic juices; the mother should take a glass of milk a half-hour before each meal, sipping it in small mouthfuls and holding it in her mouth for a little while until it is thoroughly insalivated. Thus, when it enters the stomach, small flocculent flakes are formed, which are easily acted upon by the gastric juice.

Bromidrosis is excessively disgusting. A powder as follows will be found effective. \mathcal{R} Bismuth subnit. \mathfrak{z} i; potas. permangan. \mathfrak{z} ijj; talc pulv. \mathfrak{z} iss; rice powder \mathfrak{z} ij. Dust well with a piece of cotton twice daily; and sprinkle liberally on the feet, in the stockings and in the shoes.

A PRACTICAL CONSIDERATION OF ESOPHAGEAL STRICTURE.*

BY M. F. COOMES, M.D., LOUISVILLE, KY.

STRICTURE of the esophagus has been observed in both the newborn and the aged. Complete congenital esophageal stricture is practically inoperable, but incomplete stricture in the newborn may be relieved by dilatation.

The most common causes of esophageal stricture are: (1) the swallowing of concentrated lye; (2) the ingestion of hot fluids; (3) rheumatism is said to be a cause, but the author has never observed such a case; (4) malignant growths; (5) syphilis.

The writer has seen four cases of esophageal stricture due to cancer, the patients dying within eighteen months. In two instances the ante-mortem diagnosis was confirmed by post-mortem examination. The writer has never encountered a stricture of the gullet due to syphilis.

Traumatic injuries (not produced by chemicals) are prolific causes of esophageal stricture, and it is surprising that no mention thereof is made in the work of Ingalls.

The writer saw one case in which the lodgment of a piece of bone in the esophagus produced stricture, although the foreign body was promptly removed. Three weeks later deglutition became difficult, and ultimately the patient could swallow nothing but fluids. By persistent employment of olive-pointed bougies the normal calibre of the esophagus was restored—i.e., deglutition could be performed without difficulty, the patient living in comparative comfort for several years thereafter, and finally dying of Bright's disease.

In another case an esophageal stricture was clearly traceable to the swallowing of a piece of bread hard enough to cause injury, or which contained a splinter or other sharp substance. The patient experienced considerable pain at the time, which continued, and so far as is known the stricture remains unrelieved.

The esophagus (like the stomach) is seriously imposed upon by the introduction of hot fluids, various irritating substances, rough and irregular particles of food—bread crusts, pieces of bone, fruit stones—and many other articles which should not be swallowed, any one of which may produce an abrasion which finally results in stricture.

It is claimed by some authors that acute and chronic inflammatory conditions may produce esophageal stricture, but unless the result of violently active agents, such as concentrated lye or hot fluids, the writer does not believe the statement clearly proven.

Malignant or benign growths involving adjacent strictures may exert sufficient pressure upon the esophagus to seriously interfere with or even prevent deglutition. Aneurism of one of the large vessels in this locality may produce the same result.

Spasmodic contraction of the muscular fibres of the esophagus may render deglutition for the time being practically impossible. This is a rare condition, occasionally observed in females between eighteen and forty-five years old. The writer has

encountered such instances. One was a young woman who was in great distress from threatened starvation because of inability to swallow, and who had lost twenty-five pounds in weight during a few weeks. She was unable to take solid food and swallowed water only with the greatest difficulty. Careful investigation of the history convinced the writer that it was a spasmodic stricture, and this opinion was strengthened by the fact that the woman was hysterical. The introduction of a small bougie was at first met with considerable resistance, but treatment was continued, gradually increasing the size of the instrument, until the largest was admitted, thus verifying the correctness of the diagnosis. The patient was able to swallow without discomfort after the largest bougie had been introduced, and no further difficulty was experienced. A reconstructive tonic was prescribed at her first visit, and in sixty days she had regained her normal weight.

Another was a case of non-malignant esophageal stricture in a woman twenty years of age, in which there was an occasional spasm so severe that it was thought inadvisable to forcibly introduce a bougie for fear of doing injury. By having the patient swallow hot water just before attempting introduction, its passage was easily accomplished. The dilator followed the hot water so soon as the mouth was opened after swallowing, catching the esophagus in a relaxed condition, so to speak. The patient had little or no difficulty in deglutition, and the condition might be termed purely psychical. The writer has never observed another similar case, nor could one be found in the literature consulted.

Symptomatology.—Where there has been violent traumatism, such as that produced by lye, hot fluids, or sharp cutting substances, there is always present severe pain during the acute stage. Usually the patient first complains of inability to swallow large boluses of food. As the condition progresses deglutition becomes more difficult, the patient is unable to swallow solid food, and there is difficulty in swallowing liquids. In some instances the bolus is returned immediately after being swallowed; in others the food is regurgitated later.

The writer recalls one case of esophageal stricture in a woman aged fifty years, where regurgitation of all kinds of food occurred. Vomiting was so violent as to force liquids out through the nose, and oftentimes fluids were so forcibly returned as to be thrown a considerable distance. The management of this case illustrates what may be accomplished by judicious feeding and careful regulation of diet. The stricture was impassable and was located near the stomach; in fact, the stomach appeared to be involved, there being a thickened mass at the juncture of the esophagus and stomach. The woman was an extreme dyspeptic and her stomach was so irritable that it would scarcely tolerate anything; fluids, even plain water, produced the most intense pain, indicating that there was also a gastritis present. She had lost much flesh as the result of her inability to eat, and was in constant distress from threatened starvation. The ingestion of greases and sweets were especially productive of gastric discomfort. She was placed on a diet of hot water and brown toast, with the addition of

* Part of a paper read before the Louisville Clinical Society.

just enough salt to make it palatable. The bread was roasted slowly, in order to brown it entirely through, the roasting process being stopped just short of charring. This was dissolved in the salt water. Prepared in this manner the mixture is palatable, and the patient was permitted to partake of small quantities at short intervals. After two weeks of this diet she was much improved and gained in weight. The next food permitted, in addition to the toast and salt water, was predigested beef, prepared after the formula of Liebig, which is accomplished by macerating one pound of finely comminuted lean beef for an hour and fifteen minutes in a pint of water, to which has been added four drops of strong muriatic acid and one teaspoonful of common salt. The fluid is then expressed from the meat and placed on ice. Two to four tablespoonfuls of this were allowed every two or three hours. With this additional diet the woman gained strength and flesh rapidly. In another fortnight she had decidedly improved and was then permitted to take a soft-boiled egg with the salt water toast. At the end of a month she was in good condition, and was able to eat almost any kind of semi-solid food, and was free from pain.

Depression and general nervousness usually accompany esophageal strictures of long standing, especially when due to cancer. Sometimes dyspnea is a concomitant symptom, particularly if the gullet is involved in a malignant growth. The heart's action is oftentimes much accelerated when there exists a malignant tumor, or when pressure is such as to interfere with the pneumogastric nerve.

A case is recalled in the practice of the late Dr. Bolling, in which the patient frequently asked if we "could not do something to make his clock (heart) run slower." In this case the rapid heart action was the most distressing symptom aside from the man's inability to swallow.

Reflex pain, remote from site of the stricture, is another symptom to which attention is directed. Within the past year the writer has seen two cases where the patients were unaware of the presence of esophageal stricture. The first was a young woman who complained of constant discomfort in the right side of the neck in front of the sternocleidomastoid muscle. Pain was not severe, but was constant and "itching" as described by the patient. Investigation demonstrated the presence of an esophageal stricture in the upper third.

The second patient was a man of fifty years of age who had a persistent cough and sensation of the presence of a foreign body in the upper left side of the pharynx. Introduction of a finger located a sensitive or painful point near the orifice of the left Eustachian tube. He was positive if that particular "spot" could be removed his trouble would cease, as pressure from the examining finger afforded temporary relief. Thorough examination revealed no abnormality about the pharynx, but a stricture of the esophagus was detected as the juncture of the middle and lower third. Treatment by dilatation was practiced, the stricture being traumatic in origin, as was afterwards determined. At times the painful sensation in the pharynx entirely disappeared, only to again return. Persistent cough was the most prominent and

annoying symptom, even worse than the difficult deglutition, as the patient could not sleep on that account. The cough was unquestionably due to irritation of the pneumogastric nerve.

In this connection the writer desires to mention another case where the only evidence of esophageal stricture was a persistent cough, the location or origin of which appeared to be in the trachea near the bifurcation. The patient came from Tennessee for the purpose of having his "cough" treated. Thorough investigation of the chest and larynx revealed nothing to account for the cough, which harassed him night and day. He was carefully examined in detail on three different occasions, to be certain that no causative factor was overlooked, and, failing to discover any cause for the persistent cough, it was decided to investigate the esophagus, which revealed a well-marked stricture located below the middle. The introduction of a small olive-tip bougie met with considerable resistance. After daily dilatation for two weeks the patient returned to the family physician, who continued treatment. The condition is much improved, cough is less persistent, but every now and then it returns with former severity. The patient had lost eight pounds in weight, which was regained within a month after dilatation was commenced. This loss of flesh was probably the result of worry over the possibility of his having tuberculosis.

In concluding the symptomatology, the writer desires to state that cough and reflex pain (remote from site of the stricture) in the pneumogastric area, are evidences of esophageal stricture. It is believed these two symptoms have not been mentioned by those who have heretofore written on the subject.

Diagnosis.—The history in connection with difficult deglutition are the main features to be considered in making the diagnosis. Auscultation over the esophageal area, while the patient swallows, will frequently enable one to detect the presence of stricture. If stenosis be present, the first act of the esophagus is followed by a second and possibly a third in its effort to convey the contents to the stomach. It must be remembered that after food or fluids are introduced into the gullet the act of swallowing is voluntary, hence if the contents be not forced into the stomach with the first act, a second and possibly a third will be required. The passage of the esophageal bougie will finally determine the presence or absence of stricture.

On the average the distance is eighteen inches from the incisors to the stomach, and if a bougie cannot be introduced that far it is because of an obstruction. The height of the individual in some measure regulates the distance from the teeth to the stomach, and this must not be forgotten. The esophagus should always be explored with great care, until the nature of the case is fully understood, as its walls may under certain conditions be thinned or ulcerated and forcible dilatation might result in perforation with fatal termination.

Prognosis.—In ordinary cases of esophageal stricture resulting from mild traumatism, such as injuries produced by the swallowing of rough food-stuffs or fruit stones, and moderate burns from caustics and hot fluids, the prognosis is favorable,

and with proper care recovery with good function is the rule. Where stricture is produced by concentrated lye and other violent agents, the prognosis is not so favorable, yet with adequate treatment recovery with fairly good function may be expected. The syphilitic cases should always be considered favorably, while in those resulting from cancer the patients usually succumb in from one to two years; as a rule, in less than two years, and not infrequently inside of one year.

Treatment.—The treatment is palliative, dietetic and surgical. Palliative treatment should be practiced in cancerous cases, where operative procedures are inadmissible, and the rule is they are not admissible to any considerable degree.

Perhaps the most valuable surgical measure in cancer of the gullet is the method practiced by Symonds (of London), viz.: introducing a rubber tube four to six inches long through the stricture and maintaining it in position for a variable length of time according to individual indications. This is accomplished by means of a whalebone, then withdrawing the whalebone, leaving the rubber tube within the grasp of the stricture. The tube is made secure by a piece of silk cord fastened to the outside, and may be allowed to remain in situ for weeks or even months. The opening through the tube permits the passage of fluids. Symonds claims to have treated a number of cases by this method with considerable success.

Cutting esophageal strictures has always been attended with high mortality, on account of the proximity of the pneumogastric nerve. Thirty-five per cent. of the cases thus operated upon have proved fatal.

Where the esophagus has become completely closed, and opening the stomach is necessary to save life, dilatation may be successfully practiced from below. Another advantageous procedure in such cases is to dilate the stricture sufficiently to introduce from above a probang, which carries with it a rough ligature, which is brought out through the opening in the stomach, then "sawing" the ligature over the stricture until sufficient division has been obtained.

Electrolysis has also been successfully used in the breaking up of strictures of the gullet. Aaron's contribution in *Progressive Medicine* outlines the management of the electrodes and electric current in the treatment of these cases. His device is ingenious and deserves serious consideration, as it seems to offer a means of relief in many cases which cannot be managed otherwise.

Treatment by gradual dilatation by bougies is the most common method, because it is best adapted to the majority of cases. Great care should be exercised by the surgeon in the management of these cases, and no rigid rules can be formulated. First of all, the patient's peculiarities must be considered. Some are nervous and introduction of the dilator always meets with more or less resistance; the exact location of the stricture must be determined; it may be on one side, or may be located high or low in the tube; not infrequently multiple strictures exist, hence the caution recommended. It is needless to state that patience is essential on part of both physician and patient. Much annoy-

ance may be saved by explaining to the patient in the beginning that it may take six months or longer to effect a cure. Dilatation should be practiced every other day, the size of the tip being increased as conditions will permit.

The writer has had some experience with rectal feeding in the treatment of stricture of the gullet which may be valuable to those interested in the subject. In two instances where the patients (children) had become so feeble that operative treatment was impossible until they had recuperated, rectal feeding was resorted to with excellent results. In the first case the child was so thoroughly exhausted before an opening in the stomach was permitted that death resulted, but under rectal feeding the child rallied to a surprising degree. The second child had become so weak that it could not sit up, but under rectal alimentation in forty-eight hours he was sufficiently recuperated to permit operation. A gastrostomy was performed and the boy is still living.

In another case, which has been under observation on two different occasions, the value of rectal feeding was most thoroughly demonstrated. When first seen the patient was markedly exhausted from starvation on account of her inability to swallow, and operation was not then permissible. The lower bowel was flushed with hot water and six ounces of warm milk with half an ounce of whiskey introduced every three to four hours. Improvement was marked from the beginning of treatment. In a week it was found the gullet had become pervious, permitting the patient to swallow, and she therefore declined operative intervention or further treatment, and returned to her home.

This patient again came under observation after a lapse of three years, and examination showed a condition similar to that which existed previously. On this latter occasion the lower bowel was filled twice a day with normal saline solution, and in the intervals whiskey and milk were used. Her thirst first disappeared, and finally hunger. After six days' treatment the stricture had opened sufficiently to permit the swallowing of liquids, and her strength rapidly improved. She had consented to a gastrostomy, but the writer was unable to operate at the time, on account of a severe attack of la grippe, and the patient returned home after ten days so much benefited that she considered operation unnecessary.

From the fact that in all cases of narrow stricture the esophagus is in constant muscular contraction, the development of muscular and cicatricial tissue is rapid.

The rest afforded by rectal feeding permits these strictures to resume in a degree their normal condition, and after a few days the patient is able to swallow liquids.

If rectal alimentation is continued for a sufficient length of time, deglutition becomes only slightly difficult; it is the physiological rest which induces the cure.

In the majority of cases of esophageal stricture occurring in children as the result of swallowing concentrated lye, etc., and where gastrostomy is performed to save life, the gullet finally becomes patent, when feeding through the opening in the stomach is no

longer necessary.

In the opinion of the writer many cases of esophageal stricture could be entirely relieved by persistent rectal feeding.

Discussion. Dr. WM. CHEATHAM.—It is sometimes quite difficult to differentiate between spasm and true stricture of the esophagus. Where spasm is suspected I give the patient cocaine in water, to be sipped, or othoform in tablet or powder, and by producing local anesthesia the spasm is often relieved.

In regard to dilating an esophageal stricture located below the middle. The best plan is to open the stomach and dilate from below, then continue dilatation from above.

The essayist omitted one cause of esophageal stricture, and few of the modern text-books mention it, yet it seems to be quite a common cause—viz., typhoid fever. It will be remembered that Dr. W. O. Roberts reported to the Louisville Medico-Chirurgical Society, three such cases, and Dr. L. S. McMurtry mentioned one seen in Philadelphia. In these four cases the stricture was located near the cardiac end of the esophagus and all resulted from typhoid fever. A great many instances of esophageal stricture following typhoid fever are cited in the literature. In one of Dr. Roberts' cases the smallest probang could not be introduced; the boy had lost much flesh and had been out of bed from typhoid fever only a few months. The other two patients died of starvation, and the same result will follow in the third unless the boy is operated upon. The patient spoken of by Dr. McMurtry was operated upon and recovered.

Dr. CARL WEIDNER.—In the cases of esophageal stricture that have come under by observation rest has done a wonderful amount of good, even when due to malignant disease. A lady, aged fifty-six, complained of inability to swallow; there was great emaciation; vomiting had persisted for several months and the stomach would retain nothing. A provisional diagnosis of malignant stricture was made. The woman was nourished by rectal alimentation for several weeks, not so much to give the stomach rest, but to introduce liquids into the system. In a comparatively short time vomiting and nausea ceased; the woman became more round; the tissues more succulent; the abdomen became full, and she began to gain in weight after a month's treatment. In addition, she again became able to swallow and continued to do so for five months. Improvement was so decided that the woman soon returned home, and I questioned the correctness of my diagnosis. Later she applied for treatment at the same institution, complaining of previous symptoms, and one day she dropped dead. Autopsy revealed cancer of the esophagus, which had perforated into the trachea.

Dr. J. W. IRWIN.—There is another class of esophageal stricture which the essayist did not clearly bring out—viz., due to a general neurosis—hysterical stricture. The general practitioner often encounters such cases. They are met in young girls about the age of puberty and in old maids between thirty and forty. I recently saw in consultation a woman between sixty and seventy years of age; a specialist had found an "organic esophageal stricture," and had attempted the introduction

of bougies, causing a great deal of pain. The patient had taken no food by the mouth for nearly two weeks, and had become considerably exhausted. From the history I believed the trouble was hysterical, and advised certain remedies, instead of bougies. Drachm doses of bromide of ammonium were administered, until the patient was gotten fully under the effects of the drug. The stricture passed away without further treatment.

Touching the question of ability of patients to live without food. This is sometimes very remarkable, and there are cited in the literature many instances where people lived for years without food. In the majority of these cases there was a neuro-pathic history. For instance, an Irish girl lived six years without regularly taking food; she slept almost constantly, awaking at intervals of forty-two days, when she ate one meal, then relapsed into slumber. This case is authentic. Other persons have lived for two, three and four weeks without a particle of food. The ability to live without food seems more marked in persons suffering from hysteria than disorders due to organic change.

Dr. M. F. COOMES.—Prolonged irritation of mucous surfaces invites an extra amount of blood, which increases their secreting properties and causes thickening, and activity of the muscular fibres of the esophagus induces hypertrophy, and necessarily lessens the calibre. Non-use permits the structures involved in the stricture to resume their normal condition, the excess being removed by absorption.

The rectal injection of whiskey can rarely be continued longer than four days without causing irritation. Alcohol properly used is a valuable aid in the treatment of these cases. It should be well diluted with milk and a binder over the anus is advisable that the injection may be retained until absorption takes place.

I have used normal saline solution by the rectum with beneficial results. Its effect in relieving thirst is marked.

SCARLET FEVER: THERAPEUTIC POINTERS.

BY W. C. ABBOTT, M.D., CHICAGO, ILL.

CLEAR the bowels by calomel, gr. 1-6 every hour for six doses, followed by enough saline laxative to flush the entire tract.

Repeat the saline every morning, and the calomel whenever there is headache or other indications of fecal toxemia.

Fever, delirium, full, strong pulse, demand aconitine; adult dose, gr. 1-134 every half-hour till effect, then to sustain this effect.

For children, give by Shaller's rule: One adult dose for each year of the child's age, add one more dose, dissolve in 24 teaspoonfuls of water, and give one teaspoonful at the dose. A child of five takes thus 6-24 of an adult dose.

If the fever runs high, pulse hard, urine scanty, substitute veratrine for the aconitine, in the same doses.

Delayed eruption, system overwhelmed by the force of the attack, demands atropine enough to dry the mouth; gr. 1-1000 every half-hour.

Tonsillar inflammation is one of the indications for a grain of calomel in divided doses as above, followed by saline.

The iodides have been highly commended, and Illingsworth deems mercury biniodide specific; gr. 1-134 as the age indicates.

Threatened convulsions, even undue restlessness and irritability, need veratrine rapidly pushed to nausea or soft pulse.

Veratrine is a power for good, and the safest of powerful remedies; it is the great eliminant and really aids the heart by relaxing vascular tension.

Digitalin was once thought specific; sustains the heart and combats sepsis; diuretic only when vascular tension is too low.

Digtonin is diuretic only when vascular tension is too high, and cannot act as such at the same time with digitalin.

The thirst is nicely assuaged by a few drops of phosphoric acid in water, sweetened slightly with saccharin, if at all.

Asclepidin is a mild antipyretic and aids in bringing out an eruption delayed but not with profound mental depression demanding atropine.

The headache and delirium with excitement and glittering eyes are quickly relieved by gelseminine; gr. 1-250 every half-hour the adult dose.

Motor-restlessness and muscular pains, backache, are relieved by macrotin, gr. 1-6 every hour for a child of six years.

Throughout, the bowels must be kept aseptic by a sufficiency of the sulpho-carbolates; a grain every hour at any age.

The radiation from the skin is so great that absorption of liquids from the bowels, with toxins, is especially active in this malady.

As a gentle laxative in convalescence, stimulating the digestive secretions, give euonymin, gr. 1-6 upwards, at bedtime.

Phenol, potass. permanganate and other antiseptics have been suggested, but those above advised need no reinforcements or substitutes.

Sparteine is a useful heart tonic and diuretic, but digitalin and veratrine seem to fill all the indications.

For children, we usually employ brucine as a general tonic, gr. 1-134 every hour for a four-year-old child till pulse tone is normal.

For a decided adynamia quinine, the hydrobromate during fever, arsenate to promote removal of debris, hydrofer. as tonic in convalescence.

For children, we usually give quinine in doses of gr. 1-67 every one to two hours, larger doses before meals in convalescence.

For dropsy or convulsions late in the case, give enough pilocarpine hypodermically to cause free sweating.

For albuminuria, give arbutin, gr. 1-67 to 1-6 every hour, as long as this symptom persists. Keep a watch on the renal excretion of solids.

When albuminuria persists from relaxation, minute doses of iron phosphate, gr. 1-67 every hour, sometimes act usefully.

Benzoic acid and the benzoates have been deemed specific, and probably disinfect the bowels and urinary ways; gr. 1-6 every hour for a child.

Such remedies as urinary and intestinal antiseptics may not need the dosage for adults changed; the action is the same at all ages.

Whether the benzoates, as is claimed, combat the septicemia directly is uncertain; it is significant that their beneficial effects are recognized and need explanation.

From first to last, use saturated solution of salicylic acid as a lotion for mouth and throat, very frequently—every hour.

Bad breath calls attention to the angina, with swelling of the cervical glands; treat the throat more effectually with germicides.

Chlorine water is the best germicide for the angina; whatever is used must be strong enough and applied very frequently; every 1-4 hour.

Chlorine water every two hours and peroxide every quarter-hour while awake; every half-hour when asleep, is right for bad angina.

The first sign of coryza demands silver nitrate solution 5 gr. to the ounce, repeated every two to four hours; redouble care of throat.

There is only one remedy for epistaxis: chromic acid solution strong enough to stop the hemorrhage; begin with gr. 1 to the ounce.

Ice and ice cream in small frequent doses hinder the spread of the angina remarkably, and are very grateful to the little sufferer.

Careful and frequent toilet of the mouth and throat goes far to prevent the terrible anginas. Their treatment is always local.

The French dosimetrists are enthusiastic over the results of saturation with calx sulphurata; gr. 1-6 every quarter-hour.

Many reports from our own physicians confirm the French estimates of the exceeding value of calx-sulphurata saturation. A true Calcium Sulphide must be used, not that of the open shop.

Locally and systematically, the use of nuclein solution has elicited the warmest praise. Give m. 30 *per diem* throughout.

When a tissue is attacked and its death threatens, increase its vital resistance by applying nuclein locally. It is edifying.

The value of echinacea as a systemic or hemic disinfectant is *sub judice*; but the bulk of clinical evidence is very large in its favor.

The indication to ease the kidneys by preventing fecal absorption is imperative. Buttermilk is the best diet as long as albuminuria exists.

The ventilation of the sick-room must be absolutely free; the greatest danger lies in shutting up the child with his own exhalations.

Failing otherwise to convince the family of the necessity of continuous ventilation, the writer took the window sash away in his carriage.

Keep the patient under care as long as the albuminuria persists, and do not allow full diet until it has ceased.

The most malignant forms of angina are not diphtheritic and not amenable to antitoxin or any but local treatment—except calx-sulphurata, nuclein and local antiseptic gargles.

Keep body well greased throughout the attack to limit desquamation and control contagion. Immerse all clothing and bedding in antiseptic solution as soon as removed, and boil. Never remove from room till completely saturated.

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FOOD AND TUBERCULOSIS.

SCIENTIFIC data are constantly accumulating which tend to emphasize the dangers of injection tuberculosis. While we condemn the extreme view of von Behring that the alimentary canal is the sole and only atrium by which the tubercle bacillus enters the organism, the candid mind can no longer ignore the fact that this tract furnishes the channel of infection in very many, perhaps half, the cases of the disease—perhaps even a greater proportion than this. We proceed to notice two among the many important communications bearing upon this subject:

About two years ago the British royal commission appointed to investigate Professor Koch's theory that bovine and human tuberculosis are distinct and practically reciprocally incommunicable diseases, reported that the great German scientist was mistaken; recently this commission has issued a second report confirming and strengthening its first report. Its further investigations established anew that a certain number of cases of tuberculosis occurring in the human subject, especially children, are the direct result of the introduction into the human body of the bovine bacillus, and that "in a majority of these cases" the bacillus is introduced through cows' milk. "Milk containing tubercle bacilli is clearly a cause of tuberculosis, and fatal tuberculosis in man and a very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cows' milk containing tubercle bacilli. Such milk ought never to be used as food."

Bacilli can be detected in cows' milk. But the method is not easy and perhaps generally impracticable. In our city the Health Department is making very unusual efforts to insure for our people pure milk, and undoubtedly the supply has never been so pure as we have it today. A further precaution would be Pasteurization—but not "commercial Pasteurization," which being maintained for only about a minute, is ineffectual, as Dr. Freeman points out. The milk should be heated at (and

not above) 165° F. for half an hour.

The second communication deserving very respectful consideration is that of Schroeder and Cotton on *The Relation of Tuberculous Lesions to the Mode of Infection*.* These physicians believe that "tuberculosis is a disease contracted through the ingestion of tubercle bacilli." Observe that they make and intend no qualification of this statement. They purposely ignore the likelihood of inhalation tuberculosis. Here, in our opinion, they are wrong and unscientific. They declare further that the lung is the most frequent organ affected, independently of the point at which the infectious material enters the body; that tuberculous infection may pass from one part of the body to another remote to it without leaving a chain of lesions to mark its path. Here they are certainly in accord with the most recent scientific opinion. And they find that tuberculous material from cattle has the highest virulence for all tested species of the mammalian kingdom, to which man anatomically and physiologically belongs; that tuberculous material from man has a lower virulence; and that man is constantly exposed to fresh tuberculous material through his use of dairy products from tuberculous cattle. These findings are eminently sound and based upon positive experimental evidence, and we agree with those authors, whose work deserves the profound gratitude of their fellows, that it is the plain duty, of physician and layman alike, no matter what other measures we adopt in our fight against tuberculosis, not to neglect one of the chief sources of infection—the tuberculous dairy cow.

THE PARASITES OF PARASITES.

ONE will comprehend very fairly the gruesome significance of parasitism who has observed a fly resting for a moment in maddened flights, having its body covered by animalculæ. Piana has noted that the migration of a certain worm into the liver of a rabbit introduced bacteria, and two cases of tuberculous peritonitis in dogs have been ascribed to the migration of the nematode, a bacillus-infected bacillus.

This subject was recently impressed upon scientists by Prof. H. B. Ward when he read his paper on "The Influence of Parasitism Upon the Host" before the American Association for the Advancement of Science. Professor Ward declared that our race is threatened not only by parasites of its own, but also by those which prey upon these parasites. He found that in certain cases typhoid fever and appendicitis have been caused by exceedingly minute organism, which could hardly have entered the bodies of these patients of their own

*U. S. Dept. of Agriculture, Bureau of Animal Industry, Bulletin No. 93.

accord; in his opinion there probably are in the typhoid bacillus, injected perhaps with uncontaminated water, other organisms infinitesimally small, which may cause disease in the human host. Exactly how these subsidiary organisms affect the human body has not yet, of course, been determined; it is believed, however, that there must be some injury to the intestinal wall before they can become pathogenic. Girart has observed in eleven out of twelve cases of typhoid the presence of trichuria (the whipworm), which bores its way into the intestine with its attenuated end. Ward denominates it "the lancet of inoculation." Pearls are found in oysters largely through the intrusion of these parasitic larvæ. The tissues of the oyster, being irritated by their presence, form a protective sac about them, on which is deposited lime of the same sort as the inner lining of the oyster's shell; thus gradually do such parasites become the nucleus of a pearl.

Truly, the order of nature is essentially cruel. It was customary, before the development of the present-day microscope made possible the study of bacteriology, to assume that the stronger and bulkier organisms lived by preying upon the weaker ones. Now we must recognize that oftentimes the huge animal must succumb to the attacks of the infinitely small. Indeed, the foe most destructive to the human race is a bacillus one ten-thousandth of an inch in length, several billions of which the consumptive emits in twenty-four hours. And possibly the tubercle bacillus has its parasites.

FATIGUE AND REST.

THAT change of occupation is generally restful is a popular notion which we as physicians have fostered. There are those, however, who oppose this view. Drs. Ackland and Lewis maintained before the Physical Section at the last meeting of the British Association that change of occupation is not necessarily recreation and that physical exercise is not a substitute for sleep. The toxic bodies produced by expansion of one set of centers affect others which have been unused, so that the evil effects of an over-worked brain are not counteracted by muscular activity. Féré, of Bicêtre, has also challenged the popular doctrine that rest is secured by a change of work. All these observers declare that the only remedy for fatigue is sleep; and undoubtedly, upon reflection, we must agree that they are right. It was a wise maxim of Gladstone's: "He who sleeps well lives long." Blessed especially is the physician who, amid the irregularities of his practice, can sleep in any convenient season, "at the drop of the hat." And in our therapeutics, especially of nervous cases, we are most successful whenever we can induce the best of all remedies—peaceful, normal sleep. 'Tis a wonderful restorer.

Stimulants will induce energy temporarily; they may tide the worker over a period of stress until the task is accomplished; but fatigue follows all the more rapidly, and every great stimulation is followed by at least equal depression.

Rest, says Féré, to be beneficial must be taken freely and not enforced. It is remarkable how a rest of some twenty minutes in the afternoon will often prove so restorative that the mind and body become active, the eye clear and the voice strong again until bedtime.

Another phase of the discussion at the British Association above referred to relates to the general impression that a shorter working day improves the quality of the work done. This, it seems, is not uniformly so. Some persons actually feel the need of more than eight hours of labor. If they would sleep when their work was ended rest would follow. But the energy expended in work is even more fatiguing than work itself. "Satan finds some mischief still after the eight-hour day is over." There are marked individual differences in the depth and time of slumber. Those who work by day get a maximum soundness of sleep in the early hours. Night workers begin by sleeping lightly and the maximum soundness comes during the later hours. Neurotics have two maxima of sound sleep, one at the beginning, the other at the end of their rest. Between these extremes their sleep is so light that it is easily disturbed, and insomnia may become habitual. The comparative soundness of sleep may be determined by the character of dreams. When the dreaming is fantastic and incoherent, sleep is deeper than when the imagination pursues a more logical and orderly course. It is unfortunate, however, that excessive fatigue, for which sleep is the only safe remedy, often produces insomnia, thus making the remedy unattainable.

DOWN WITH THE BROOM!

A COLLEAGUE recently entered one of those vacuum establishments and asked to have the method demonstrated to him. He was taken into a room beautifully carpeted, containing an upholstered chair seeming of great price and having its walls besilked instead of papered after the manner of humbler apartments. A white flour was distributed, even rubbed into the texture of the carpet, the chair and the wall-silk. Were the broom the only method of removing the ugly white spots thus produced, the attempt would drive the average housewife to despair, to insanity or to suicide. Not so with the vacuum cleaner, which rapidly and thoroughly removed the flour, so that no stain of it was left upon the red textures. "You think your coat is clean?" the investigating physician was then asked by the enthusiastic demonstrator; "then watch that little

glass jar." The jar was quite immaculate; but presently, as the machine was manipulated down the physician's back, it became begrimed with a most unwholesome looking dust.

Facts are facts, and if this looks like a "reading notice" we can't help it; we can afford to ignore any such imputation, especially under the consciousness that it is our duty to acquaint our readers with the most recent principles in sanitation. The change from the broom to the vacuum cleaner is, seriously, most important, as every one must agree who realizes what a breeding ground for disease is the common dust, not only in our houses, but in our streets as well. The physician can entirely satisfy himself of this by exposing a petrie plate containing a nutrient gelatine to the air of a room while it is being swept by a broom or to the air in the street on a windy day. Let him, then, set this plate aside for twenty-four hours; if the gross changes in its surface do not signify to him the development of many bacterial colonies, let him examine these impurities under the microscope or have an expert to do this for him. There are some eighteen pairs of plates which Dr. Woodbury, our recent Street Cleaning Commissioner, had made, which will certainly be found an adequate and all-sufficient demonstration. Every housewife should welcome an apparatus which removes dust so that it can be destroyed by fire, instead of scattering it in all directions, settling it upon shelves, pictures, curtains and carpets in a thin film.

No doubt much disease of the upper air passages and the lungs is contracted in this way; to this cause we may fairly attribute a great deal of tuberculosis. The broom is, moreover, not only unsanitary, but absurd in its application; it may clean the surface of a carpet, a chair or a curtain well enough, but the dust is thereby only scattered elsewhere and spread over a wider area than before. "Down with the broom!" declares the *Lancet*; and so say we.

CEREAL BREAKFAST FOODS.

AN amusing poem recently went the rounds of the exchange columns of the newspapers called "The Breakfast Food Family." It describes a family, each member of which requires a separate food, making an excellent burlesque on the present fad with its pseudo scientific advertising. Thus one line ran: "While sister Jane sustained her brain with gripo-grapogriffs."

However, the cereal breakfast men need fear no Upton Sinclair, for their products are prepared and put on the market in a manner far superior to former methods. The United States government acknowledges this in a recent publication, Farmers' Bulletin No. 249, of the Department of Agriculture. It states as the result of long investigations "in some of the manufactories the

preparation of the cereal food seems almost perfection as regards cleanliness."

Agricultural experiment stations in Connecticut, Minnesota and Maine have experimented with healthy men to learn how thoroughly these foods are digested. The highest coefficient of digestibility of protein, 83.1 per cent., was found in the rolled wheat products, partially cooked, and the lowest coefficient with undecorticated wheat products. These stations reached the conclusion that rolled wheat must be placed first for digestibility and corn products last, with rolled oats standing in between. Yet, laying aside the question of the digestibility of the protein, it has been found that oats contain the largest quantities of the important nutrients with a fairly low proportion of crude fibre. However, wheat ranks very close in all respects—in fact so close that the difference is trifling, while it is freer from crude fibre. Bran is placed under a ban, for it is the belief of these investigators that the crude fibre which is contained in the bran makes the whole material so much less digestible that more protein is actually available to the body when the bran is excluded. Moreover the ordinary mixed diet furnishes all the mineral matters which the healthy body needs, so bran is not needed for this purpose. Bran-containing preparations should therefore be avoided by persons of weak digestion, but are useful in cases of constipation. The investigations show that to normal healthy individuals all the ordinary varieties of breakfast cereals are wholesome, individual taste deciding which is most palatable. Corn and its preparation are rich in fat and carbohydrates, but are less digestible, while rice is poor in protein, but free in a remarkable degree from crude fibre, and hence furnishes a large percentage of digestible carbohydrates. Barley is moderately digestible and contains a fair percentage of nutrients. Thoroughness of cooking is an important factor; it renders the cereal more palatable and breaks down the walls of indigestible cellulose which surround the starch grains and produces other changes less well known. The majority of ready-to-eat brands are thoroughly cooked, and this is important, for poorly cooked cereals may cause indigestion.

The bureau quaintly says that "in choosing between the various breakfast foods it must be remembered that a novel appearance and quasi scientific name do not necessarily represent any unusual food value." All brands are of about the same composition as the cereals from which they are made. There is no connection between price and nutritive value, thus the retail price runs from three cents a pound for plain meals sold in bulk, to fifteen cents for the ready-to-eat brands. Pound for pound the proportion of nutrients does not differ greatly.

The cereal breakfast foods as a class are nutritious, convenient and reasonably economical, and worthy of

an important position in the dietary if combined judiciously with other food products.

"THE DOCTOR'S DILEMMA."

THIS is the title of a play which Bernard Shaw has written. It is being acted in London, and perhaps we shall see it here, so that a consideration of it will not be amiss. We are indebted to the *British Medical Journal* (Nov. 24, '06) for a sketch of the plot.

Shaw has an idea, to begin with, that many eminent physicians and surgeons have but little to do; and we all know how idleness puts one in the way of temptation. So we are prepared for the portrayal of an eminent pathologist, who is rather naughty in his way of life. This pathologist has discovered a vaccine for tuberculosis which, if used with proper regard to the opsonic index, will cure the disease. The treatment by this vaccine is still in the experimental stage; and at the time of the opening of the play it has been possible to prepare only enough for ten cases. These have been carefully selected and most of them are in hospital awaiting treatment. Now appears upon the scene an artist and his beautiful wife. At any rate she believes she is his wife; but as the artist is a complicated rascal—a *la* Shaw—she and the audience are until the end of the play left in doubt. Anyway, this very well-intentioned lady adores the artist as a man and worships him because of his artistic soul. He is dying of consumption. Will the pathologist save him? At first the latter refuses to number him among the lucky ten, but finally consents, being impressed by her representation that though her presumed husband is worthless as a man, his artistic achievements are delightful and benefiting the world. Presently, however, the pathologist, finding the object of the lady's adoration to be a really impossible combination of artist and blackguard, a sort of twentieth century Benvenuto Cellini, wonders whether his life is, after all, worth saving; whether it might not after all be better for the lady that he should die before her illusions are altogether destroyed. Upon these cogitations there intrudes an old fellow-practitioner, a good man morally but of no special use to the world (he not having painted lovely and benefiting pictures), who has also developed consumption. Shall the artist be cast aside and his place among the fortunate ten be given to the inconsequential medical man? This is the "doctor's dilemma," which is further complicated when the pathologist discovers that he has fallen in love with the lady and finds that the honorable hope of marrying her in the event of the artist's death keeps bobbing up from somewhere among the sub-

liminal strata of his consciousness. Like Banquo's ghost, this hope will not down; and he finally determines to accept for a patient his fellow-practitioner and to hand over the artist to the tender mercies of a fashionable physician whom he knows to be a wretched bungler in practice. The artist dies according to anticipation after securing the lady's promise to remarry as speedily as she can—because the idea of a sorrowing widow has always jarred upon his æsthetic sensibilities. Before the rigor mortis has set in the pathologist (who is certainly the ideal villain in the play) asks the widow for her hand, confessing that when he put the artist in the hands of the fashionable bungler he did so in the full expectation of a fatal issue. The lady is properly shocked, as a perfect lady naturally would be, refuses him with scorn, and declares she couldn't, anyway, because she has already remarried.

Several things are noteworthy about this play. For instance: There is probably no class of men so very busy, nay so overworked, as eminent physicians and surgeons. The method of preparing bacterial vaccines is at present complicated. But the basis of these vaccines is the bacteria themselves, and as, in the case of tuberculosis, the average sufferer emits several billions of bacilli in a day, we would hardly fear a shortage of the essential material, nor any great difficulty in providing for more than ten cases. We hope much for these injections of bacterial vaccines; but neither they nor any other agency are going to save a case that is "dying of consumption."

"Fashionable practitioners" are not bunglers. People who live in that rather vague and mysterious realm which goes by the name of "fashionable circles" are generally well-to-do. They can afford to pay handsomely for professional services; and realizing as they do that health is by far the most desirable of all possessions, they are going to be precious careful that the physicians whom they engage are capable men.

We hope to see this play, although we haven't time to go to London for that purpose; we would certainly find it diverting in ways not intended by its author.

CEREAL PRODUCTS AS SUBSTITUTES FOR COFFEE.

The infusion of tea, coffee and "cereal" coffee consists principally of water, being as high as ninety-nine and one-half per cent., with about two-tenths of one per cent. of protein and a similar amount of carbohydrates. Representing the food value per pound of skimmed milk at 170 calories, coffee in the proportion of one ounce to a pint of water represents sixteen calories or less than one-tenth of the nutrition of skimmed milk; tea is fifteen, while "cereal coffee" is 30 calories. Cocoa, on the other hand, represents 365 calories.

Some coffee substitutes contain a little true coffee, but generally they are made of parched grains of barley, wheat, or of grain mixed with corncobs, peahulls or wheat middlings. Barley or wheat parched with a little molasses in an ordinary oven makes something indistinguishable in flavor from some of the cereal coffees now being marketed. These substitutes are claimed to be harmless substitutes for coffee, scarcely to be distinguished in flavor and yielding more nourishment. If they contain no coffee, the claim that they are not stimulating is true without doubt. Yet these substitutes do not resemble true coffee in flavor, while the nourishment is infinitesimal.

There are special volatile bodies in true coffee which give it its characteristic flavor, while its principal value comes from the stimulation of the hot water. Permit a patient to drink lukewarm tea or coffee and their value as stimulants or foods is largely lost. If for any reason a patient should not drink tea or coffee, these cereal coffees offer a harmless substitute, but their nutritive value is practically nil. It is well for physicians to remember this fact.

An Abortionist Convicted.—For many years Dr. W. W. Turner conducted two maternity hospitals in Buffalo, one for women who said they were married, the other for those who admitted that they were not. He advertises extensively, and some uncharitable persons inferred from the advertisements that pregnant women could be relieved of their trouble before the period of physiologic completion had elapsed. Among these uncharitable persons were the board of censors of the Medical Society of the County of Erie. But, year after year passed without the occurrence of anything that could be used to interfere with the doctor's business.

Last fall, there was a nocturnal row, screams, blood, all sorts of sensational rumors and statements, and an official investigation resulting in disagreement by the jury. Just what happened, no one seems to know. At any rate, no ordinary murder had been committed, and, although patients had previously died under the doctor's care—as naturally occurs in the practice of any physician—no such catastrophe had taken place at this time. So far as we can judge, from the various accounts, what caused the whole trouble for the doctor was an entirely adventitious quarrel with a hot-tempered nurse that happened to occur during or soon after a uterine curettement or some similar operation. The patient, so far from dying, was able to leave the city, but was later induced to return for the trial.

A second trial has just resulted in the conviction of the defendant. This result is one on which the people, as well as the medical profession, may well congratulate themselves. It is not only a verdict against an individual, but an expression by the plain people of the necessity of a decent society. Not one of the jurors is professionally a sociologist or moralist. Presumably, each was admitted by the defense under the supposition that he would, at any rate, not represent an excessively strict code of morality. We find in the jury three farmers, a gardener, a horse shoer, a salesman, a clerk, two merchants with small capital, a builder and a grader. One could scarcely devise a list of occupations that would better typify an ideal jury—that is to say, one representing the substantial, hard-working, hard-headed, soft-

hearted, average American. We say "soft-hearted," because, as a people we are notoriously considerate of the under dog, however much he deserves punishment, and, in this case, the jury recommended leniency.

Another point of interest in this case is the attitude of the Medical Society as represented by its censors. They had long had an eye on the defendant and they aided materially in the prosecution. Why? Because Turner was a quack? Because he advertised in the newspapers? NO! Because he was suspected of endangering maternal and of ending foetal lives, and because evidence was finally obtained that elevated the suspicion to a fact. Do not understand us as advocating in any way a withdrawal from the time-honored and time-tested conceptions of professional dignity. But it is a serious mistake, and one which has, in the past, lessened the natural influence of the medical profession with the people, to lay stress on ethical matters, especially as the professional code condemns precisely those methods which most laymen use in their own business and which they see used by others for whom every one has esteem. Down in his heart, every intelligent layman comprehends why professional men have this feeling, and he usually—not always—steers clear of the medical quack and of the religious charlatan. Still, when it comes to a matter of life or death, or of serious legislation or enforcement of law, the average American citizen quite properly ignores niceties of dress, language, table manners and ethical distinctions that separate the gentleman from the mucker.

A point of vital interest to our profession is the attitude of the court and the people, toward the representatives of the medical profession. There was, of course, the attempt on the part of the attorney of the defense to show persecution, but even he laid more stress on the matter of professionalism than of interested motives, and the worst allegation that he made was that a censor must be censorious. In summing up the case, the judge spoke as follows:

"So far as the Medical Society is concerned, it is organized to keep the morals and standards of the medical profession high, and the fact that officials of it have seen fit to interest themselves in this case is not to the discredit of the society, nor should the fact operate in any way against their brother, the defendant, unless what the society's officers contend, and would have you believe, is true, in your opinion."

A Dreadful Opera.—The term "normal" is one easily comprehended, but, like many another, difficult of definition. The individual who has suffered no taint from his forefathers and whose organism is in harmonious relation to its environment, is normal; whatever in life does not conform to the moral, mental and physical standard which the race has reached in its evolution is abnormal, degenerate, decadent, unnatural.

Such degeneracy is a loathsome thing. Nevertheless, physicians must consider it; for in our practice we have constantly to deal with it. Some of us, as is essential, have made deep study of it; so that the fruits of their labors may enable the rest of us to deal rationally with it. For the sacrifices which they make, apart from those usually made in scientific work, we are profoundly grateful to them. But when we and they have performed our professional duties with regard to these things, we are all of us most heartily glad, after vig-

orous mental and digital saponification, to get away from their taint into the clean air of heaven. We are above all anxious to keep these loathsome things away from the ken of our normal fellows; most anxious are we that such putrescence shall not obtrude into their experience.

But now what has happened? A degenerate who was during his life a by-word even among degenerates, a boy lover, who had descended to the uttermost depths of vileness, decided he would write a play upon a theme "bizarre and sensual," so he informed the actress for whom it was intended. Certainly he has succeeded; for he has expanded one of the foulest conceptions ever formed. He chose a scriptural episode, such as all who have ever felt a religious emotion, no matter what their creed or sect, whether of the Christian or any other faith, people imbued indeed with only common morality and decency, have found one of the most pathetic in all human knowledge. He has, with undeniable and most abhorrent skill, represented a decadent period in the Jewish race. There is the pitifully neurasthenic ruler with his unquiet restlessness, his indecision, his shriveled inconsequence, his terrors and his uneasy imaginings; and his implacable consort. One of the most inspiring and at the same time one of the most touching figures who has ever helped his kind by the proclamation of a new light, has sternly rejected the advances of a lustful young woman. Enraged whereat, she dances libidinally before the king; and then claims as a compensation the prophet's head. Presently then "a long black arm reaches up (from the cistern) the silver shield, which Salome eagerly seizes."

All this has been set, by the greatest composer of our time, to the most devilishly seductive music imaginable. Upon the operatic stage no vilest detail has escaped the fullest exposition. There is the dance of the seven veils, in which each veil is removed during sinuous movements, such as the law has in disgust long ago banished from the rottenest dives. And the head of John the Baptist, white, hair-entangled, and imbedded in blood, is delivered to the abnormal thing which thereupon makes ghastly obeisance before it; and she besmears with her kisses the dead lips of the head which but a moment before scorned even to look upon her. Here, by all that is horrible, is an idealization and a glorification of Jack-the-Ripperism in its every essential motivity, in its most revolting aspects.

The critics are not a squeamish lot. Yet they characterize this performance as horrible, disgusting, revolting; "the consecration, through those seductive avenues, the senses of hearing and sight of perversion, lust and murder"; the theme being "akin to the games of the old circus, or the domestic decorations of Pompeii"; "a representation of Sadism and necrophilism, the sensuality that is yoked with a lust for blood and death"; "unquestionably one of the most dreadful representations that have ever been put upon the stage." Its "repugnant realism," its "decadent spirit," its "grisly cruelty" are dwelt upon. "The fact that it is phrased in limpid language and sung to emotion-liberating music does not make it any less ghastly or horrible to the sane man or woman with normal generic instincts, uncorrupted by artifice and undefiled by paradox in the sphere of thought and perversity in the sphere of passion. The whole is weighed down with a stifling and heavily erotic atmosphere, like a fantastic and op-

pressive nightmare. A strange and intangible feeling of horror pervades it, a sense of indefinable dread."

How did the audience take it? Upon that mouthing of John's dead lips some hastily arose and left the house; others sank back in their chairs and shuddered. As for the rest—

Is our civilization going to stand for this thing? Not at all. The ban was laid upon it after its initial performance; nor, we believe, will it again be seen or heard either in this or in any other American municipality.

The "cures" of Christian Science were discussed in a lecture on "Psychotherapeutics," by Dr. Pierre Janet, during his recent visit to the United States. He admitted that in some cases these "healers" had accomplished good results. But he complained, rightly enough, of the absence of precise data in the reports of "cures." These have been claimed in 98 per cent. of cases, but no diagnoses had been made and the statistics were scientifically inconclusive. Janet declares that the neglect of diagnosis and contempt for the medical profession has characterized all healers since P. Quimby began his work in 1840. We agree here with Professor Janet, but are not inclined to deal too roughly with P. Quimby. It seems that it was from this man that Mrs. Eddy filched whatever ideas that she has found worth while in her peculiar science. But he never claimed anything more than mind cures, nor did he ever, as did this ingenious lady, claim cures as a part of a pseudo-religious system. He does not appear to have been a conscious trickster. Cure by faith, declares Dr. Janet, resembles the old medical "theriac," a mixture of drugs, some one of which might prove to be a good shot and hit the bull's eye. He thinks, oddly enough, that the "miracles" of Christian Science are on a higher plane than those of Lourdes (here we should hardly agree with him), and he puts hypnotism above the methods of either. Every educated Frenchman is surprised, it seems, that faith-healing should be with us a religious process.

New York City's milk supply is now clean, declares Commissioner Darlington, and this is an achievement second only in importance to securing a supply of pure drinking water. Dr. Darlington has found that the trouble was not so much with the city venders as with the country milkmen. Contamination and adulteration are both carried on more largely up the State than here in New York. When he began his investigations there were only two inspectors for all the dairies and creameries. A law was then discovered which permitted the Health Department to revoke permits unless inspections were allowed, with the result that the Department's inspectors are now closely scrutinizing the source of the milk supply in New York, New Jersey, Connecticut and Massachusetts. In this State alone fifteen inspectors are now employed, five hundred barns are examined every week and the milk is examined in transit. The result is that hundreds of dairies have been closed, some of them permanently. The fines exacted jumped in one year from \$1,500 to \$16,000. Since then they have fallen practically to nothing, although the watchfulness of the inspectors has been increased; it is thus evident that the city's milk supply has been bettered. The commissioner declares our milk supply to be "better and purer than that of any other city in the world."

* *The New York Times*, January 23, '07.

BIBLIOGRAPHICAL

The Elements of the Science of Nutrition. By Graham Lusk, Ph.D., M.A., F.R.S. (Edin.), Professor of Physiology at the University and Bellevue Hospital Medical College, New York City. Octavo of 326 pages. Illustrated. Cloth, \$2.50, net. Philadelphia and London: W. B. Saunders Company, 1906.

The appearance of a work on nutrition at this time is indeed opportune, for the subject of nutrition is now receiving the widespread attention that its importance demands. Dr. Lusk in this new work reviews in as concise a manner as possible the scientific foundation upon which rests our knowledge of nutrition. His constant aim has been to make his book useful alike to the student and general practitioner, and he has treated his subject in its relation to both health and disease. Every statement is the direct result of actual experience, so that the work is eminently practical as well as scientifically accurate. The general practitioner, therefore, in his daily practice, will find this work of the greatest value.

A Text-Book of Pathology. By Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Fifth Revised Edition. Octavo of 977 pages, with 399 text-illustrations, many in colors, and 7 full-page colored plates. Cloth, \$5.00, net; half morocco, \$6.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

The demand for this work demonstrates beyond question the high favor in which it is held by the profession. It is not only abreast of modern pathology, but it presents the subject in a concise and well-considered form, with unusual emphasis upon pathologic physiology, making it a most serviceable text-book for students and practitioners.

In this edition a large part of the sections dealing with general pathology have been reconstructed, and the chapters on inflammation, immunity and animal parasites have been extensively revised and somewhat augmented.

The volume has been increased in size, plates have been recast, and the publishers have spared no expense in making the present edition all that can be desired.

A Text-Book of Diseases of Women. By J. Clarence Webster, M.D. (Edin.), F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynecology in Rush Medical College, in affiliation with the University of Chicago. Large octavo of 712 pages, with 372 text-illustrations and 10 colored plates. Cloth, \$7.00, net; half morocco, \$8.00, net. Philadelphia and London: W. B. Saunders Company, 1907.

This new text-book is based on the extensive clinical experience of its author, and unusual prominence is given to the scientific basis of each subject under consideration. Special endeavor has been made to include all the important original investigations of recent years, so that the work represents the present-day knowledge upon a subject of the greatest importance to every practitioner. Indeed, Dr. Webster has written this work especially for the general practitioner, discussing the clinical features of the subjects in their widest relations to general practice rather than from the standpoint of specialism. The magnificent illustrations, some four hundred and fifty in number, are nearly all original. Drawn by leading medical artists under the author's direct supervision, they portray the anatomy of the parts and the steps in the operations with rare clearness. The general practitioner will find it just the work he has

long needed.

A Manual of Normal Histology and Organography. By Charles Hill, Ph.D., M.D., Assistant Professor of Histology and Embryology, Northwestern University Medical School, Chicago. 12mo volume of 463 pages, with 312 illustrations. Flexible leather, \$2.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

This manual is intended for elementary students, and the text is presented in a simple, clear and concise manner for easy retention.

The figures have been selected to illustrate the salient points, and are of equal importance as objects of study. The oral cavity has been given special attention.

The author believes in the laboratory method of study and that this work should precede the class-room work, for which this manual is written.

Atlas Text-Book of Human Anatomy. Volume II. By Professor J. Sobotta, of Wurzburg. Edited, with additions, by J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy at the University of Michigan, Ann Arbor. Quarto volume of 194 pages, containing 214 illustrations, mostly all in colors. Cloth, \$6.00, net; half morocco, \$7.00, net. Philadelphia and London: W. B. Saunders Company, 1906.

The second volume of this magnificent work, covering the viscera and the heart, is before us. It has seemed desirable to include the heart with the viscera, since it is usually dissected in common with them and its arrangement with them in this work will consequently be more convenient for the use of the student.

The selection and mode of reproduction of the dissections are identical with those employed in the first volume.

Photography has been made the basis for all the original drawings and has been uniformly utilized for the general lines of the illustrations.

In the production of this volume, even more than in the first, the publishers have spared neither effort nor expense to insure the greatest excellence of the illustrations.

A Text-Book upon the Pathogenic Bacteria. For Students of Medicine and Physicians. By Joseph McFarland, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia. New (5th) Edition. Octavo volume of 647 pages, fully illustrated, a number in colors. Cloth, \$3.50, net. Philadelphia and London: W. B. Saunders Company, 1906.

This standard work comes to us in its fifth edition with much new matter added, and some, considered worthless, eliminated.

The chapters upon infection and immunity, in which subject the advance of knowledge is rapid, have been entirely rewritten.

The author has tried to make his text interesting to the reader, to convey to him all the essential facts of his subject, and to inform him of the sources from which his facts are gleaned.

This work, with its many revisions, is considered classic on the subject of bacteriology.

The Immediate Care of the Injured. By Albert S. Morrow, M.D., Attending Surgeon at the Workhouse Hospital and to the New York City Home for the Aged and Infirm. Octavo of 340 pages, with 238 illustrations. Cloth, \$2.50, net. Philadelphia and London: W. B. Saunders Company, 1906.

A copy of this book should find a place in every house-

hold, and at the same time it will serve as a text-book for the use of First Aid classes.

The text is presented in simple language, technical terms being omitted as far as possible.

It is intended to help the layman render temporary assistance until the arrival of the physician, and as such the book is highly commended.

A Text-Book of Pharmacology. Including Therapeutics, Materia Medica, Pharmacy, Prescription-writing, Toxicology, etc. By Torald Sollman, M.D., Assistant Professor of Pharmacology and Materia Medica, Western Reserve University, Cleveland, O. New (2d) Edition. Octavo of 1070 pages, fully illustrated. Cloth, \$4.00, net; half morocco, \$5.00, net.

The advantages of studying therapeutics in the light of pharmacology needs no recommendation, they are apparent, but up to the present the facts furnished by pharmacology have been comparatively inaccessible.

The author in this volume has attempted to give all the important pharmacologic facts and to arrange them in a systematic and logical manner for the best service of the student.

The present edition has been practically rewritten in order to bring the subject matter thoroughly in accord with the present status of the science. The text is well arranged for study, both in classification and description.

Materia Medica for Nurses. By Emily M. A. Stoney, Superintendent of the Training School for Nurses at the Carney Hospital, South Boston, Mass. Beautiful 12mo of 300 pages. Third edition, thoroughly revised. Cloth, \$1.50, net. Philadelphia and London: W. B. Saunders Company, 1906.

The third edition of this useful book for nurses has been carefully revised and adapted to the recent revision of the United States Pharmacopœia. Many changes have been made with the view of increasing the value of the book, and making it a more complete presentation of the essential facts in Materia Medica.

A Manual of Pathology. By Guthrie McConnell, M.D., Pathologist to the St. Louis Skin and Cancer Hospital and to St. Luke's Hospital, St. Louis, Missouri. 12mo of 523 pages, illustrated. Flexible leather, \$2.50, net. Philadelphia and London: W. B. Saunders Company, 1906.

This is an excellent manual of a difficult subject, and it will enable the student to rapidly acquire the salient points preparatory to more voluminous works. With brevity the author has not sacrificed clearness in the exposition of his material. It is the first book on pathology that should be given the student, and it will be found to facilitate further study.

The Practitioner's Medical Dictionary. An Illustrated Dictionary of Medicine and Allied Subjects, Including all the Words and Phrases Generally used in Medicine, with Their Proper Pronunciation, Derivation, and Definition. By George M. Gould, A.M., M.D., author of "An Illustrated Dictionary of Medicine, Biology, and Allied Sciences," "The Student's Medical Dictionary," "30,000 Medical Words Pronounced and Defined," "Biographic Clinics," "The Meaning and Method of Life," "Borderland Studies," etc.; Editor of *American Medicine*. With 388 illustrations. Octavo; xvi. + 1043 pages. Flexible leather, gilt edges, rounded corners, \$5.00; with thumb index, \$6.00, net. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut Street.

This book is in every respect and detail new. Its object is to supply the practitioner with trustworthy, modern definitions of essential medical words and terms.

It is based on recent medical literature, and is fully illustrated.

It contains among other new features the terms of the Basle Anatomical Nomenclature (BNA).

The standards of pharmaceutical preparations as authorized by the eighth decennial revision of the United States Pharmacopœia are given.

Tables of signs and abbreviations used in general medicine and the specialties, and of the English and metric systems of weights and measures are introduced.

It has been made up in a form most suitable for ready reference, complete in text and illustration, and attractive in appearance. Printed on tough, thin paper, excessive weight and bulk is eliminated, while the dull surface of the paper, together with the employment of new clear type, facilitate ease and comfort in reading. The book will lie perfectly flat at any page to which it may be opened.

That over 200,000 copies of Dr. Gould's other medical dictionaries have been sold is sufficient evidence that this work is worthy the most earnest consideration of every practitioner.

Tropical Medicine. With Special Reference to the West Indies, Central America, Hawaii and the Philippines, including a General Consideration of Tropical Hygiene. By Thomas W. Jackson, M.D., Lecturer on Tropical Medicine, Jefferson Medical College, Philadelphia; Member of the American Society of Tropical Medicine, etc. One hundred and six illustrations. Octavo, 536 pages. Price, \$4.00. Philadelphia: P. Blakiston's Son & Co., 1907.

The purpose of the author has been to prepare a simple and systematic treatise on tropical diseases as found within the boundaries of our own territory, and he has succeeded admirably.

The text is lucidly and interestingly written, and of sufficient length for most purposes.

We commend the book most highly to those of our readers who are interested, as it cannot fail to give satisfaction.

Text-Book of Anatomy for Nurses. By Elizabeth R. Bundy, M.D., Member of the Medical Staff of the Woman's Hospital of Philadelphia; Late Adjunct Professor of Anatomy and Demonstrator of Anatomy in the Woman's Medical College of Pennsylvania, etc. With a Glossary and 191 illustrations, 34 of which are printed in colors. 252 octavo pages. Price, \$1.75. Philadelphia: P. Blakiston's Son and Co., 1906.

This little book will aid the pupil nurse in acquiring that knowledge of the human body which is essential to the full understanding of her important duties. The text has been arranged in the interest of this class of students. Many of the terms of the B. N. A. have been introduced.

The book will be found most useful for its purpose.

The Harvey Lectures. Delivered under the Auspices of the Harvey Society of New York, 1905-06. 12mo, 337 pages. Philadelphia and London: J. B. Lippincott Company, 1906.

This volume contains lectures upon the following subjects:

The Theory of Narcosis; Modern Problems of Metabolism; On Trypanosomes; Autolysis; A Critical Study of Serum Therapy; The Neurons; Fatigue; The For-

mation of Uric Acid; The Extent and Limitations of the Power of Regeneration in Man and Other Vertebrates; On the Nature and Cause of Old Age; Modern Views Regarding Placentation; Some Phases of Tuberculosis; The Cause of the Heart Beat.

These lectures are by men eminent in each particular line of study, and the subjects have been carefully brought down to date. The volume will prove of great service to those interested.

Plaster of Paris and How to Use It. By Martin W. Ware, M.D., Adjunct Attending Surgeon, Mount Sinai Hospital; Surgeon to the Good Samaritan Dispensary; Instructor in Surgery, New York Post Graduate Medical School. 12mo; 72 illustrations, about 100 pages. Cloth, \$1.00. New York: Surgery Publishing Co., 92 William Street.

This useful little book contains a vast amount of knowledge in shape for practical use, not before easily available.

The text is vividly written, profusely illustrated, and covers the subject from the making of the bandage to its use as a support in every form of splint, corset or dressing, including dental work.

The book is produced in the usual artistic manner of this publisher.

Practical Dietetics with Reference to Diet in Disease.

By Alida Frances Patte, Graduate Boston Normal School of Household Arts; Late Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City, etc. Fourth edition. 12mo, 300 pages. Price, \$1.00. New York: A. F. Patte, publisher, 52 West 39th Street.

A text-book for the physician, student and nurse, as a general guide for proper diet in disease. A work on the preparation of proper food for the sick and convalescent, giving in detail the method of preparing and administering liquid, semi-liquid and solid foods.

Contains the diet lists and what to avoid in various diseases; also the proper diet for infants and children as advised by leading physicians. A very practical and useful book.

The Practice of Obstetrics. Designed for the use of Students and Practitioners of Medicine. By J. Clifton Edgar, Professor of Obstetrics and Clinical Midwifery in the Cornell University Medical College; Visiting Obstetrician to the Emergency Hospital of Bellevue Hospital, New York City; Surgeon to the Manhattan Maternity and Dispensary; Consulting Obstetrician to the New York Maternity Hospital. Third Edition. Revised, with 1279 illustrations, including five colored plates and 38 figures printed in colors. Large octavo, 1071 pages. Price, \$6.00. Philadelphia: P. Blakiston's Sons & Co., 1907.

The third edition of this great work, which has already 11,000 copies in the field from previous editions, comes to us somewhat reduced in size by rewriting and condensing, but many new and beautiful illustrations have been added.

Much time has been spent in bringing the embryology and pathology of the subject up to date, and the section on obstetric surgery has been largely rewritten and added to.

The text is written from a practical and clinical standpoint, based upon an immense experience with some 20,000 confinements. The popularity of the work has been well demonstrated, and we must place it at the

very head of its class.

Syllabus of Lectures on Human Embryology. An

Introduction to the Study of Obstetrics and Gynecology for Medical Students and Practitioners; with a Glossary of Embryological Terms. By Walter Porter Manton, M.D., Professor of Clinical Gynecology and Professor Adjunct of Obstetrics in the Detroit College of Medicine; Fellow of the Zoological Society of London, of the Michigan Academy of Sciences, etc. Third Edition. Revised and Enlarged. Illustrated with a colored frontispiece and numerous outline drawings. 12mo, 136 pages, interleaved throughout for adding notes. Bound in extra cloth. Price, \$1.25, net. Philadelphia: F. A. Davis Company.

This work is specially designed for, and will be found particularly useful to students in their first and second years at college and is likewise a desirable manual for review and reference for the general practitioner. It is primarily for use in the class-room supplementary to the lecture and for laboratory guidance.

Conservative Gynecology and Electro-Therapeutics.

A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. Benton Massey, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia; Fellow and ex-President of the American Electro-Therapeutic Association, etc. Fifth, Carefully Revised Edition. Illustrated with twelve original full-page chromo-lithographic plates of drawings and paintings, 15 full-page half-tone plates of photographs made from nature, and 157 half-tone and photo-engravings in the text. Complete in one royal octavo volume of 467 pages. Extra cloth, beveled edges. Price, \$4.00, net. Philadelphia: F. A. Davis Company.

The demand for a fifth edition of this standard work within a year of the appearance of the former edition is strong evidence of the esteem in which the volume is held by the profession. It also shows that conservatism in the practice of gynecology is on the increase, and that therapeutic effort in this direction is broadening.

In reviewing the text for this edition the author has brought the technical consideration of the constant current derived from the street mains still further up to date, and has further elaborated the chapters on the cataphoric treatment of cancer.

The book stands in the front rank of its class.

Four New York State Laboratories are now maintained: The State Hygienic Laboratory at Albany, which is in charge of Dr. H. D. Pease; the Sewage Experimental Station at Saratoga; the Cancer Laboratory in Buffalo, of which Dr. H. R. Gaylord has charge, and the Bender Laboratory in Albany, of which Dr. R. M. Pearce directs. At the first of these institutions are prepared the diphtheria and tetanus antitoxins which are supplied to health officers by the department for use in cases in which these could otherwise not be obtained; here also are made the examinations of suspected sputa for t. b., of nose and throat discharges for diphtheria bacilli, and of specimens of water, food, etc., to ascertain if they are pure. The Cancer Laboratory is concerned only with the etiology of malignant growths. The Bender Laboratory is used in connection with the Sanitary Institute for didactic lectures and laboratory work in the various courses of instruction for health officers and for special investigation.

CORRESPONDENCE

WILL SANITARY MEASURES EXTERMINATE DISEASE?

To the Editor of the MEDICAL TIMES:

Will sanitary measures exterminate disease? And now comes vividly to mind my father's asparagus bed, one of the first of its kind in the valley, a beautiful spot, the soil being rich and always carefully attended, and where returning spring gave yearly and abundant recompense to labor, but, alas! my father having died, fell into the unskilled hands of the son. Well, it is needless to say that during all these former years no harm came to it, while the neglect of a single season brought disaster, and the bed was ruined by the destructive asparagus beetle. The bed was an isolated one, the event an eye-opener, and where did the beetle come from? If we turn our attention to the San Jose scale we will find that the evidence accumulating during several years prior to 1900 seemed to show that very possibly this scale was originally imported into this country from Japan, therefore in the spring of 1901 an efficient entomologist was sent to that country for the purpose of studying the question on the ground, but it was soon ascertained that the San Jose scale is not indigenous to Japan, but that quite to the contrary, it was introduced into that country from the United States upon fruit stock at several different times and places, and the most careful search failed to reveal the scale in portions of Japan where American plants had not been introduced. Traveling in the Japanese Empire for five months, this entomologist next proceeded to China, visiting Chefoo, the port of the great foreign fruit district of North China, where the industry was started by a missionary thirty years ago, and since which time has extended over the province. Foreign fruits were introduced and are now grown alongside the native fruits or grafted on native trunks. The San Jose scale was found there, but the mixture of foreign trees with the native ones prevented any conclusion as to whether the scale was indigenous or not. Proceeding to Peking he found the fruit markets enormously overstocked, and representing exclusively the products of the surrounding country and districts south of and adjacent to the great wall. All the fruits were native. The apples were small and the pears hard and woody. Nearly all of this fruit was infested by the San Jose scale. At Tientsin the same conditions were found in the fruit markets and in the city gardens and private yards; the San Jose scale was also found on a flowering shrub coming from North China. Now in all the region between Tientsin and Peking and the Chinese wall *native fruits only are grown, and no foreign stock of any kind has ever been introduced*. Apples, pears, peaches, apricots and plums are extensively grown on the sunny slopes of all the hills south of the great wall. Therefore the San Jose scale in this district could not have come from any foreign country, as there have been no importations and the fruits are all of native sorts. Now the thing that is especially interesting in this connection is not only the fact that North China is beyond all doubt the native home of the scale; in other words, the soil on which it is indigenous, but what is far more interesting and important to us, viz., that the scale here at home occurs very scatteringly, although generally, and is in a state of balance with its native natural enemies. *It has a natural enemy every-*

*where present and efficient in a ladybird beetle, known as *Chilocorus Similis*.*

It was my privilege, in a former essay, entitled, "What is Disease?" to show that the more the economy of nature is disturbed, the greater will become the number of disease processes compensatory; if preference is shown for one vegetable form over another that form must be held in check, else it overrun the earth, hence parasitism; and yet the very parasite evolved is, and must be held in check by another, else Nature lose her variability. All of organic life, therefore, acts in a twofold manner—viz., pursuer and pursued.

Here, then, we are face to face with an intricate problem, and yet simple, the history of the San Jose scale serving as an apt illustration, for Mr. Marlett finds it to be a native of North China. All parasitism finds a like home, a native indigenous abode evolved to meet a special local condition, and only to become generally distributed by accident; visited on its native soil, the peculiar environments which gave birth will likewise stay its ravages by other and entirely efficient means, climatic, parasitic, geologic, or what not. Therefore we speak of a caterpillar enemy of the black scale, which has been brought to this country from Italy, the black scale being a serious enemy to olive culture in California, occurring not only upon the olive, but likewise upon citrus trees, upon a shade tree known as the pepper tree, and upon other plants. Now the caterpillar in question, viz., the *Erastris Scitula*, is found in the Mediterranean regions, that is, here it has been evolved, for, be it remembered, that new forms of life are continually *appearing* at one end of the scale and old forms *disappearing* at the other, consequently in this region olive trees are comparatively free from the black scale, while in California it is the growers' worst enemy, and a bad one. Plant lice having accidentally been imported into this country from Europe, we journey to Europe to find there its natural indigenous destroyer, again found in a ladybird beetle known as *Coccinella Septempunctata*, and as if it were a connecting link between the vegetable and the animal. A fungous disease, very fatal to grasshoppers, has been discovered in South Africa, and, drawing conclusions from these recited instances, we are free to say that all of vegetable and animal life finds its destroyer. This is parasitism, and all of organic nature is subject to its law. We live, as it were, at the expense of other and lower organisms, and it is this feeding which eventually results in the death and extermination of any form of life. Of such necessity is nutrition. Wherein, then, comes the remedy—the peculiar something which Nature, every kind, always brings to the individual which otherwise must perish? To the destroyer of the vegetable she brings a parasite, born and bred in its natural habitat and subject to the laws of its environment, which holds it in check and which efficient effect re-establishes the broken economy of Nature, while to the animal, and especially man, she has opened her storehouse of wealth and bids him accept of her bounty, for, remembering that diseases which arise from without the body are microbic, she wisely supplies the remedy. The stone age being past, and the iron age having grown old, we look for that which is new, and which indeed is with us. This, therefore, we class as the great antiseptic age, when from the bowels of the earth there is daily being exhumed vast quantities of coal and coal oil, from which are extracted the thousand and one principles of antiseptics.

Here, then, is the remedy. Realizing long ago that it is not so much the microbe itself as its toxine producing function which constitutes the danger, we have not been slow to learn that it is not necessary to administer the antiseptic in massive doses, capable of destroying the microbe, a dose relatively feeble sufficing to neutralize the action of the latter, that is, to prevent its multiplying and producing the toxine which is peculiar to it. "Speaking of physicians," said a druggist friend of long and valuable experience, whose duty it was to compound and dispense long before the microbian theory was announced, and ever since, "I long ago observed that those physicians who prescribed calomel were eminently more successful than those that did not. We did not know the whole reason then, but we know now."

What auscultation was to the physicians of the first third of this century, what the cell theory was twenty-five years later to the succeeding generation, the microbian doctrine is to the practitioners of to-day. The microbian theory has enabled us better to comprehend the mode of action of a great number of medicaments, and consequently to define and extend the therapeutic indications to it, we are indebted for a clearer light which we to-day possess as to the true mode of action of those medicines at first employed empirically which have long been designated as specifics, for instance, mercury in syphilis, or quinine in malaria. These medicines, being in reality antiseptics, do good principally because they antagonize the microbes which engender the diseases. They are so little specific that one of these salts, the bichloride of mercury, may be considered as the most powerful agent of general antiseptic therapeutics, and as for quinine, its tonic action unquestionably is closely linked to its antiseptic action. Here, then, is the great panacea.

The secret of success, therefore, becomes as an open book, for antiseptics realizes better than any other therapeutic measure the desideratum so long sought as the Utopia of medicine, viz., the jugulation of acute disease, because antiseptics is addressed directly to the cause of the same, and if it does not always reach this from the onset, it at least prevents this cause from prolonging and increasing its effects. Thus we cannot fail to note the high rank in the scale of antiseptics occupied by the noble metals, mercury, platinum, silver, and gold, while in a rank a little below we place the common metals, copper, iron, etc. To a third rank belong the alkaline earthy metals, to a fourth the alkaline metals, to a fifth the metalloids, chlorine, bromine, and iodine. And together we march them with those antiseptics borrowed from organic chemistry, the science of all the carbon compounds, with saturated hydrocarbons, fatty series or derivatives of methane, alcohols, ethers and organic acids, with the aromatic series or derivatives of benzene and with the alkaloids. And in battle array we pitch them over and against stomatitis, and noma, and whooping cough, against dyspepsia, and diarrhoea, and enteritis, against endocarditis, and pericarditis, against nephritis, and cystitis, and balanitis, against diphtheria, and typhoid fever, and all inflammations, "for the vine is dried up, and the fig tree languisheth; the pomegranate tree, the palm tree also, and the apple tree, even all the trees of the field are withered, because joy is withered away from the sons of men."

F. B. BRUBAKER, M.D.

RETROSPECTIVE

Acute Cardiac Dilatation.—Beverly Robinson (The Clinical Manifestation and Treatment of Some Forms of Acute Dilatation, *The Am. Jour. Med. Sc.*, Feb., '07) shows ripe experience in considering such forms of this grave lesion as may be associated with the acute infections; as may be of nervous origin; and as may be due to irregular modes of life. Recognizing that chronic dilatation is very frequent as the result of chronic endocarditis, of renal disease, of arteriofibrosis, of arduous and continuous work (as among the laboring classes), of frequent heavy strain (as in athletes), and where there is an antecedent history of syphilis or chronic alcoholism, he confines himself to the manifestations stated above.

Acute rheumatic endocarditis generally results fatally because of the dilatation following upon a toxic action of the rheumatic poison upon the myocardium. Such dilatation is far more important of consideration in its immediate and remote results than any pericardial rub or endocardial murmur. Its remedial treatment consists in salicin with sodium bicarbonate, etc., internally; and, locally, bloodletting with leeches or venesection (especially when there is engorgement or dilatation of the right ventricle), followed by the ice bag over the precordium. Salicylic acid poisoning and the "air hunger" characteristic of it, should be guarded against. In *pneumonia* the general toxæmia being oftentimes so profound and the pulmonary obstruction so great, one must always fear cardiac dilatation. Sudden death while straining at stool, or sitting up in bed or even while playing at cards during convalescence, is becoming of painfully frequent occurrence. The pneumococcus or its toxin affects the entire myocardium and produces relaxation, loss of tone and even degeneration; all this being indicated by a weak, failing, rapid or intermittent pulse, with dyspnoea and cyanosis. Here Robinson agrees with A. H. Smith that such vasodilators as the nitrites should be used, so as to bleed from the veins into the arteries. For the trouble really lies in that the former are blocked up and their circulation intensely impeded by an overflow of blood; while the arteries receive very little blood and the left heart is absolutely prevented from exercising its function by reason of insufficiency of fluid in its cavity to permit of efficient action. We should then give drop doses of a nitroglycerin solution (glonoin) every fifteen minutes until we shall see a happy change. The pulse increases in volume, the cervical veins become less distended, the dilatation of the right heart subsides, the right ventricular systole is more effective, and the pulmonic second sound is again appreciable. Nevertheless the nitrites will hardly take the place of bloodletting in this grave condition. Robinson prefers, however, leeches or wet cups locally to the lancet. (One had best, however, be prepared for venesection if the situation is desperate.) Oxygen and alcohol should be at hand (and we would add camphor in ether—1 in 8—for hypodermatic use). Digitalis is ineffectual, except after bloodletting; it may then give strength to cardiac beats when the pulse is weak, rapid and intermittent.

In *diphtheria* sudden or very rapid death may take place, especially in the markedly toxic forms; increased dyspnoea, pallor—the face perhaps dusky or ashen—cyanosis of the lips and fingers are precursors. The temperature may not be high—perhaps 102°. The heart

failure here results probably from paralysis of the cardiac plexus and perhaps quite independently of any anatomical changes in the myocardium. Nevertheless, the diphtheria toxin must in these cases have affected the heart muscle. The condition here is remediable. During such an attack the patient must lie prone; everything tight should be loosened or removed; smelling salts; hot water bags to the præcordium and the extremities; strophanthus by hypodermic, or *per os* with brandy or ammonia. Overfatigue should be guarded against for many months. Iron, quinine, arsenic, strychnine, are the tonics indicated. There should be country air, good nourishment and complete rest of mind and body. *Influenza* is another frequent cause of rapid cardiac dilatation; the latter may occur even in the earlier days of the disease. Oftentimes the only explanation of the great weakness existing in grippe is the dilated heart. Again after a long and apparently complete convalescence there may supervene all of a sudden great depression, the patient being tired, limp and incapable of exertion. An ocean voyage may be essential here—a complete change of life; the Naheim treatment abroad; and after this, some months in the mountains—if the patient can afford such things. We regret, because of space, to have to refer for the remainder of Dr. Robinson's valuable observations to his paper, as indicated.

For La Grippe C. E. Nammack (*N. Y. Med. Rec.*, Dec. 22, '06) declares there is neither a prophylactic nor a specific. (With regard to the former much can be done by way of hygiene of the nasopharynx and the mouth.) We should try to prevent the spread of the disease. Isolation of the patient should be attempted, though we cannot much hope that by this means either the activity of the infecting principle or the susceptibility of other individuals will be diminished. Bed at once and, if given at the time of the initial chill, a fair-sized single dose of calomel, followed, if necessary, by a saline, will eliminate much of the infection. Nammack does not approve the use of analgesic antipyretics. (Nevertheless, the following will in most cases answer well: \mathcal{R} Pulv. bellad., pulv. capsici, codeine aa gr. $\frac{1}{4}$, phenacetin gr. iij, euquinine gr. i. Ft. one powder q.2—4 hours.) Convalescence must be managed by tonic and supportive treatment, especially in relation to the nervous system.

School anæmia attacks children during school age. Unruh (*Deutsch. Med. Woch.*, Oct. 11, '06) objects to the term; the school itself does not play a causative part in many of these cases. Tired and exhausted children, who look pale, have no appetite, are constipated, and suffer a number of minor symptoms are often met with, and the teachers are apt to complain that they are lazy, inattentive and fractious. These symptoms are prone to appear soon after the child begins school attendance; or soon after the higher classes are reached. They are particularly manifest at the end of the day's lessons, and especially when an extra amount of work has had to be done. The school seems to have caused the anæmia by overburdening the child. Unruh, excluding all those who evidence mental or physical degeneracy and heart diseases, divides the anæmic children into four classes: those who are purely anæmic or chlorotic; those who show signs of myocarditis; who suffer from a cardiac hypoplasia; and those affected with cyclic or orthotic albuminuria. The school is to a certain extent respon-

sible for the first group; very few children escape the exhaustion and tiring-out symptoms of anæmia after having gone through the hardest school years. Boys are, contrary to the general impression, more frequently affected than girls. Both young and older children suffer. It is here necessary to distinguish anæmia from chlorosis, which supervenes at a slightly later age. Not only scarlatina and diphtheria, but also sore throat and other milder children's affections may occasion myocarditis. The diagnosis is easy as soon as the heart is examined. The affection attacks both sexes equally and may occur at any time; but the tendency to this form of myocarditis increases with age. Hypoplasia of the heart and large vessels as a cause of anæmia in school children has nothing to do with the school, though its etiology is obscure; this may be said also of the albuminuric form of anæmia, from which girls suffer more than boys. The frequency of myocarditis and disturbances of growth in children is often much underrated. The treatment depends largely upon the form present. The child should not stay from school because of pure anæmia unless the signs are extremely marked; but myocarditis should exclude. Great care is essential in cases of cyclic albuminuria; but it is not always necessary to keep the child at home. Exercise and muscular work are more likely to reproduce the albuminuria after it has disappeared than dietetic errors. The standard of knowledge, the age, sex, and social position should be considered in deciding whether a child should be kept from school. Violent exercise, sports and gymnastics are often prescribed as cure-alls, but such lack of discrimination is highly dangerous. Rest and care, for a period to be determined in each case, are required as a rule. And exercises and studies, when resumed, should be strictly measured.

Asthma may in a few cases be due to hereditary tendencies, believes DeL. Rochester (*Jour. A. M. A.*, Dec. 15, '06), but most cases assigned to this cause are due really to neglect, in early life, of catarrhal affections of the upper air passages, producing pathologic hypertrophies of the turbinates, of Luschka's tonsil and of the faucial tonsils. These conditions tend to pulmonary emphysema, with imperfect oxygenation, resulting in the auto-intoxication manifest in the asthma. Cases developing later in life are also due to imperfect metabolism and auto-intoxication due to unhealthful habits, among which Rochester includes overheating, constipation, sedentary life and insufficient lung expansion in an imperfectly oxygenated atmosphere. The chief evidences of auto-intoxication are the degree of acidity and the amount of indicanuria manifested. Rochester has never studied a case of asthma which did not present a strongly acid urine that deposited, by means of the centrifuge, urates and uric acid or calcium oxalate, and showed a pronounced reaction for indoxyl sulphate. In treatment one must logically attend to the upper air passages and to the nutrition in early life. If seen later, much can be done to prevent recurrences of the attacks by correcting obstructions in the upper air passages and other sources of nervous irritation. Above all, the intake of food must be regulated and the elimination of waste products stimulated, so that a proper metabolic balance can be maintained. In this excellent paper Rochester has nothing new to recommend as regards medication. During a seizure such as is oftentimes most distressing and even appalling, the circulation will

have to be carefully watched; strychnine, nitro-glycerin, camphor and ether (3i—5i) and morphine, and the oxygen tank are the drugs upon which one must rely. Hot saline rectal injections may be essential.

Medicine as a Science and Medicine as an Art; Also, in View of This, a Few Words About Specialist and General Practitioner.*—To-day, in my judgment, we are becoming victims, as it were, of too much science and too little art in medicine. Of course, it is a good thing to have Science to the uttermost, and profit as much and as well as may be by her teachings. But we must not be in a hurry to believe absolutely the results of the best laboratory findings as applied to the art of medicine, until thoroughly tested and proved to be true by the actual daily work of the clinician. And even then several years should elapse and very many observations be made, before we overturn the old and firmly established dicta for what, many, many times, is ephemeral and passing. How many illustrations I could give! A few only are required "to point the moral and adorn the tale." I take it that every good practitioner in large centers of population, as least, is familiar with all the later teachings of the laboratory, as regards the diagnosis of stomachal ailments, and yet practically how few there are which tell the practitioner what to do and also succeed in relieving suffering patients from symptoms. With chronic gastritis and atrophy of gastric tubules, while relief may occasionally be given by dilute hydrochloric acid after meals, with or without pepsin, frequently it will utterly fail. The food which chemical, biological bacteriological research would surely indicate as bad, is just the food that suits the stomach and is well digested and assimilated. Formulae, at times, which seem complicated and without rational basis, so far as one can judge on scientific grounds, empirically used and adopted, have done lots of good. Thus many a practitioner who has grown gray in service has discovered, in one way or another, at the end of many busy days, a few combinations upon which he pins his faith and which will relieve when almost everything scientific has been tried and utterly failed. Of all panaceas for chronic malarial poisoning there is no combination equal to tincture or extract of Warburg—and yet why? Impossible to answer by reason of the "olla podrida" of drugs. Its efficacy, however, is undoubted. The experienced practitioner who knows and has seen a lot is often to-day put aside for the younger man, often a specialist, simply because the public are not taught *continuously* his immense value. The great consultant in medicine and surgery is only on rare occasions really very helpful in a practical way, so far as doing for the patient is concerned, unless he is familiar with his antecedents from the *family physician*, or has been the *family physician* of the individual about whom he is consulted. *The best consultant is usually, if not invariably, the man who has drawn out of general practice because by age and experience he is entitled and ought to do so, and for whom his old patients are wise enough to send when in great trouble, to consult with the younger man who has taken up the toga which the older man has cast off for good and sufficient reasons.*

* By Beverly Robinson, M.D., Clinical Professor of Medicine, University and Bellevue Hospital Medical College, New York. *Monthly Cyclopedia of Practical Medicine.*

Hecht's Test for Fat in Faeces.—Dr. Adolf F. Hecht of Vienna (*Muench. Med. Woch.*, No. 7, 1906), describes his clinical method of estimating fat in the faeces, as follows:

About 10 c. c. of faeces are placed in a wide-necked flask of about 300 c. c. capacity, by means of a burette with ground glass piston. A piece of potassium hydrate, about the size of a pea and enough water to dissolve it, are added and the mixture is heated on the water bath for about ten minutes, until translucent. 100 c. c. of 96 per cent. alcohol are added and the heating is continued for 20 minutes, a funnel being used as a condenser. This saponifies the fat.

The mixture is acidified with concentrated HCl, using a few drops of 1 per cent. alcoholic solution of alkali blue as an indicator, and filtered into a porcelain capsule, washing the filters with alcohol. The alcohol is completely driven off, over a water bath, one hour sufficing. The residue is extracted with as little ether as possible and is transferred, by means of a small filter (funnel?) into the lower part of a special apparatus. After evaporating the ether, the top part of the apparatus is fitted on, filled with water somewhat over 70 degrees (C.) and the melted fatty acids are read off on a series of graduations, each of which corresponds to 4 centigrams of fat. The fat sticking to the sides of the apparatus rarely amounts to more than 4 centigrams, but even this error can be avoided by placing the apparatus in a receptacle of hot water for 15 minutes.

The apparatus consists in a truncated conic glass flask with ground neck, over which the graduated part is fitted. To insure tight union, each part has projecting knobs over which spiral springs are hooked. The graduated part is contracted to a slender cylinder, bearing the graduations, and is then expanded to a funnel mouth. This apparatus is made by Haack, of Vienna, at a price of K. 4.50 (about \$1.80). It would seem that the ordinary centrifuge flask for estimating fat in milk might be used, by calculating the necessary coefficient. The author states that his method is sufficiently accurate for clinical purposes and particularly useful when the fat has been precipitated as soaps of the alkaline earths.

Sleep and the pituitary gland have a relation, according to Salmon (*Revue de Medicine*), who believes the cause of sleep to be an internal physiological secretion. The hypophysis (pituitary body) is assumed to play an essential part in sleep production. The substance of this gland is said to contain bromin, which fact serves to support the theory that the hypophysis exerts a sleep-inducing influence upon the nerve centres. Salmon bases his theory upon the occurrence of anatomical changes in this organ in various diseases, which are associated either with somnolence or with insomnia.

Mixed Infection in Tuberculosis.—Pottenger and Browning (*Jour. A. M. A.*, Mch. 24, '06) have used streptolysis serum subcutaneously in a number of cases in which streptococci were found in the sputum. Twenty c. c. per diem were used at first and 10 c. c. were added each day. These excellent workers learn from their observations that the streptococci were found in lung tissues beyond the areas of necrosis and can be present without causing acute symptoms. The products of the tubercle bacillus cause symptoms very like if not identi-

cal with those of the so-called mixed infections; possibly those symptoms are due sometimes to the one or the other, or may be both combined. The streptococcus plays a part at least in some cases of mixed infection, and streptolytic serum has some specific action on this germ, as shown by the reduction of fever and abatement of symptoms in some cases of the hectic type. This coccus plays also a part in the general pathology of the tuberculous process. In chronic cases without marked symptoms this is shown by the altered character of the sputum and the general improvement following the use of the serum. When no acute symptoms are present the serum seems to exert a favorable influence upon the course of the disease to such an extent as to suggest that the presence of the streptococcus affects the tuberculous process unfavorably, even when no actual symptoms are present. "Mixed infection is a factor to be recognized and dealt with before the advent of threatening symptoms, just as tuberculosis is to be diagnosed and treated before the advent of consumption."

Poorhouse Fare.—Sir Lauder Brunton recently called attention to the fact that in 1901 nearly 10 per cent. of a million "working" paupers were living at the age of eighty-five or upwards. A workhouse diet may not be very pleasing to the palate, but "it certainly seems an efficient means of prolonging life." Sir Lauder recommends that those who have not the courage to adopt such a dietary had best reduce their butcher's bills and drink more water. His lecture, printed in the *Lancet*, is pregnant with advice how to preserve vitality by deep breathing and how to guard against infections and diseases of the heart and blood vessels. It seems a very easy thing to avoid old age nowadays; one has only to drink sour milk, *a la* Metchinkoff, or to stick to poorhouse fare and "spartan soup." Was that what Gladstone, Bellini, Titian, Garcia and many another venerable personage did to keep on living? And it is really a poorhouse dietary and not Christian Science at all, which keeps Mrs. Eddy perennially verdant.

A Cure for Sleeping Sickness.—Professor Koch, in his official report to the Imperial Minister of the Interior, declares atosyl, a preparation of arsenic, to be as efficacious in the treatment of sleeping sickness as is quinine against malaria. He has discovered that *glossina palpalis*, one of the insects disseminating trypanosomes, lives in the undergrowth or on water plants growing near the margins of lakes, and feeds on dead water fowl, fish, and especially crocodiles. Dr. Koch has availed himself of the offer made by the British Government to place at his disposal an empty mission house at Bongali, in the Sese Islands, which are northwest of Victoria Nyanza. Here are now 900 patients being treated with subcutaneous injections of a one-half gramme solution of atosyl. Among these patients are those who have been under observation for two to three months, but, fearing relapses, Koch has concluded that they must remain under observation several months longer, before their permanent cure can be assured. Six hours after an injection trypanosomes were still present in the patient's system; but after eight hours the germs disappeared. The malady attacks chiefly males in the prime of life and the mortality has been so great that whole villages are now inhabited only by women and children. The popu-

lation of the Sese Islands in 1902 was 30,000; it is now 12,000.

The hygienic condition of books in the Berlin public library has been investigated. With the dirt gathered from such books, some of which was known to include tubercle bacilli, experiments were made upon guinea pigs. Books used but two years gave no result; but not so the refuse collected from particularly soiled books and such as had been in circulation from three to six years. Attempts at sterilization, by means of formalin vapor, failed; and in this process the books themselves suffered to the extent that many were practically spoiled. The city authorities have therefore decided to abstain from further disinfecting experiments. In conjunction with the City Medical Society and the Police Department the books will be periodically examined in the public libraries; and such will be destroyed as have been used so much that they appear a danger to public health. Such books are not to be sold for old paper; they must be burned.

War and Tuberculosis.—The *International Journal of Ethics* finds that in the "glorious" victories of Cæsar a million men perished by the sword. Napoleon in the short space of nine years managed to devote 2,103,000 of the sons of France to glory. In the ten years following the attack on Fort Sumter there were destroyed in war 1,400,000 lives and six billion dollars worth of property. Two-thirds of the combined budgets of the various States of Europe are devoted to the maintenance of armed forces and to the liquidation of a debt practically the whole of which was incurred by wars. War expenses in Europe absorb one-half of all the wealth created by productive labor. The Boer war cost England 22,450 men and nearly a billion and a half of treasure; and to engage in this little scrap she had to withdraw from productive industry 350,000 men. Military expenditures during the last eight years have cost the United States fully a billion and a half of dollars. Yet war has not been so costly either in human life or in treasure as tuberculosis, as the statistics of Richat and others attest.

There are too many scientific congresses, is the plaint made by the *Revue Scientifique*. Much money, time and labor wasted, it would seem, by their multiplicity, although it is recognized to be essential to the man of science that he may from time to time compare notes with his colleagues. A manifest handicap, with regard to these congresses, is the diversity of language. At Lisbon, although the use of Portuguese was not permitted, the reports were distributed so tardily that members of the congress had no time in which to prepare themselves to speak. Much time was lost in attending fetes and other entertainments. (There are lots of us who would—wisely, we think—not consider this lost time.) Many eminent men failed to appear personally; and their papers were read for them by others. Yet the desire to attend congresses is sufficiently keen to assure a fairly moderate continuance of a practice very wholesome for those who can afford it.

The chest-swelling drill which has heretofore been an essential part of Tommy Atkins' training, is to be dropped if the recommendations against it prevail. It is hoped that henceforth there will be no interference

with the natural breathing of the soldier. It is claimed by Lieut. Col. F. H. Davy, M.D., in *London Spectator*, that the chest-swelling system has entailed some sad results in the invaliding returns of young soldiers. It seems that the thoracic dilatation insisted on in the army is necessarily and inevitably productive of a disturbance of the balance which exists in health between the pulmonary and the systemic circulations, with consequent cardiac embarrassment and breathlessness. Dr. Davy considers these drills a disease-producing and foolish practice, which, when it does not result in invaliding, causes great physical discomfort and discontent, and makes hard work very much harder still. The physically strongest soldiers know nothing of this practice.

The New York City Tuberculosis Hospital is established upon a site at Otisville, a settlement in the town of Mount Hope, Orange County, 77 miles from the metropolis by way of the Erie Railroad. There are some 1,300 acres; the land has an altitude of about 1,400 feet. The physical conditions are favorable to the scientific treatment of about two hundred patients. Incipient cases will be admitted; as also convalescents from the hospitals. \$225,000 has already been appropriated for buildings. The construction and equipment of shacks will cost \$80,000; the dining-room and kitchens, \$20,000; a barn for forty cows, \$18,000; a power plant, \$30,000. The rest of the appropriations will go for dormitories, employees, roadways, paths and general improvements. This institution, planned as it is in accordance with the most scientific theories regarding phthisiotherapy, should prove a model of its kind; and the work done there should largely increase the number of cures.

A eucalyptus grove, 8,650 acres in extent, is the property of the Santa Fe Railroad. It is near Del Mar and is known as the Rancho San Diegito. But 700 acres have been planted thus far; and a like area will be planted yearly for a number of years. The wood will be used for tiles and piles; \$3,000 worth of timber can be raised on one acre. The red gum as well as the sugar and iron bark varieties of eucalyptus will be planted; these have been shown by experiments in Australia to last more than twenty-five years under ground, while the blue gum will not last more than three years under ground.

A bad method of preserving milk is attributed to von Behring, by which it can be kept for an indefinite time without boiling it or damaging its nutritive qualities in any way. A sixth of an ounce of perhydrol is added to a gallon of milk, which is then heated to 122° F. The perhydrol decomposes into water and oxygen; the latter escapes and the milk is left diluted with a very small quantity of water and is absolutely microbe free. On the one hand a milk absolutely microbe free would be actually unwholesome; on the other hand we have had methods of producing embalmed milk a plenty. Pasteurization is undoubtedly the best method of making milk wholesome (heating for 30 minutes at a temperature not above 165° F.).

Surgery as a Vaudeville Show.—Medical men are sometimes so carried away by their enthusiasm that they make presentations at times which are—well, rather unfortunately chosen. On one occasion, not purely medical, where many ladies not professionally

interested were present, a physician related with enthusiasm a case in which the intestine was removed per vaginam to a length which he estimated to be nearly that of the meeting-room in which he spoke. Another physician, during an exceedingly interesting popular lecture, reproduced a famous Rembrandt (those old masters among the Dutch were nothing if they were not realistic) depicting a birth in which the cord and placenta are so vividly portrayed as to leave nothing whatever to the imagination. These were among our best men, actuated by the most wholesome motives. The *Journal A. M. A.*, however, relates the experience of Torkel, of Breslau, who saw, in a kinetoscope show at Freiberg, a representation of several major operations as performed by a well-known surgeon; these were a resection of the knee, puncture of the brain after wide opening of the skull and a vaginal total hysterectomy "done on a naked woman" as the barker at the door proclaimed, naming the surgeon. The vaginal operation was accompanied by extensive hemorrhage, and several persons left the theatre in horror. Such presentations are of no use in medical teaching because of the rapidity of their movements; and such public exhibitions are not only demoralizing to the young, but give a completely distorted picture of the surgeon's work, representing it as a barbarous rushing through of the task. Torkel rightly urged the authorities to interfere and to forbid such pictures. He does not condemn the surgeon by name, but it will be recalled that Doyen of Paris has presented before scientific societies moving pictures of some of his operations, and that he recently brought suit against the photographers for reproducing the views without his permission, obtaining damages and an injunction against their further use in France.

Relief is pauperizing in San Francisco; that seems to be its tendency everywhere. Practically all those who have been prominently identified with local charitable organizations in that city have united in a petition and protest to the relief committee, asking that the reorganized charitable institutions of San Francisco be given control of the distribution of the relief and Red Cross funds. These institutions, now rehabilitated, should be permitted to attend to the wants of those in need and to handle the funds necessary for that purpose. By the way, how about those doctors, who worked so faithfully and so effectively for the sick and the distressed in the dreadful days of the earthquake and the fires; why are not these men reimbursed for their labors in the same manner as other citizens—out of the very ample funds at hand?

Eclampsia and Weather Influences.—We have always felt that the influence of weather upon the organism is not sufficiently reckoned with by physicians. W. Ruth (*St. Petersburg Med. Wochschr.*, Dec. 15, '06—*J. A. M. A.*) urges greater care of pregnant women in regard to skin functions. In damp weather the body should not be exposed for this reason and because a heavier tax is thus imposed upon the kidneys. His own experience accords with that of others in confirming the connection between chilling the body surface and the development of eclampsia. In his article are several tables showing the marked influence of damp weather, long protracted and irrespective of the temperature, on the number of cases of eclampsia.

MISCELLANY

For diarrhoea immediately after eating Osler corrects the diet, orders rest for an hour after meals, gives bismuth (3ss-j t. i. d.) or naphthaline preparations, for abnormal conditions in the small intestines.

In nervous dyspepsia our main object should be to increase systematically the amount of food (Einhorn); especially should milk and its derivatives, kumyss, matzoon, clabber, buttermilk and cream be taken between meals.

The typhoid spine must be considered either as a neurosis or as due to organic changes. McCrae's recent reports (*Jour. A. M. A.*), favor the latter view. The condition should be regarded as organic unless decided evidence of its neuritic nature be forthcoming.

Is it as bad as all that? Love, declares *The Graphic*, is not so irresistible a factor as it was, and there is a tendency for the members of either sex to retire to opposite camps and snarl at each other. Circumstances are removing the centre of happiness from the heart to the pocket.

Artificial Leg for a Horse.—Prof. Udriski, a member of the staff of the veterinary school at Bucharest, has succeeded, after amputating a horse's leg at the fetlock joint, in fitting a leather artificial leg, by means of which the animal is enabled to walk about and take exercise.

Bulgarians are the longest lived people in the world, according to statistics just published. But, asks an exchange, what's the use of living a long time in Bulgaria? Is not this a paraphrase of the famous comment on the camel: This animal can go ten days without a drink; but who wants to be a camel?

Salicylic acid compounds, when used as preservatives, are, according to Dr. Wiley's experiments, sufficiently injurious when taken continuously to exert a depressing and harmful influence upon digestion. As food can be preserved in an unobjectionable way without their use, there is really no good reason why they should be retained.

Incipient tuberculosis, declares Superintendent Burnham, of the Raybrook Sanatorium, in New York State, is practically unknown to the profession, save to those actually engaged in special work along this line; many cases are referred to Raybrook which have to be rejected because they are passed beyond the incipient stage. This is, no doubt, the case in all such institutions.

"Patients calmly seeing themselves sliced" after the administration of "a strange, new anæsthetic, stronger than cocaine," is the agreeable announcement made in the lay press. Truly, twentieth century medicine is a marvelous thing, if we are to believe everything the reporters write about it. Prospective trolley car and auto victims should certainly not go about without taking with them a supply of this strange, new and even enjoyable, lethal agent.

The Medical Era for December last contains an editorial on the subject of "Veiled Advertising by Leading Physicians," which must, from the standing of the parties attacked, receive some attention. These men are professors in medical colleges, are, or have been, officers of medical societies, and are supposed to stand for the highest ethics in the profession. Explanation is certainly in order, and we shall look with some curi-

osity to see what the American Medical Association will do about it.

A course of studies in penal sciences has been instituted at the University of Toulouse, and has been organized by its faculties of law and medicine; the subjects taught are penal law and procedure, penal science, ideas of legal method and of medicine in general. This course is supplemental by practical demonstrations and by exercises in the interpretation of criminological data submitted to the classes. It is hoped that the outcome will be a number of experts in criminal jurisprudence whose opinions will be of real value in the court room.

Tuberculosis from milk is the gist of a paper which von Behring recently read before the Society for the Care of the Sick in the German Colonies. He declared that consumption is the "last verse of the song in which the first verse was sung in the infant's cradle." This worker holds that the germs reach the lungs through the lymphatics and blood vessels. Such is undoubtedly the case in many instances; but it certainly is not so in all, and probably not in the majority. Extreme views are unscientific views; and such are in the long run found to be untenable and mischievous.

An international agreement for the adoption of measures tending to secure improved sanitation in cities was suggested in the Third International Conference of American States. This would, as the *Jour. A. M. A.* points out, be of the greatest importance to commerce and the public health, and would ultimately relieve in great measure the necessity of quarantine. A working plan should recognize that epidemics requiring national intervention originate in unsanitary local conditions. The argument naturally follows that national governments must in some manner take a more direct part in correcting these faulty local conditions.

A Diet Kitchen.—This institution is very well exemplified in the recent report of the New York Diet Kitchen Association, which furnishes pure milk free to the destitute sick in their homes. Requisitions signed by dispensary and other doctors are presented by persons who then carry it home to those among their families who are ill. Representatives of the association visit the sufferers after the milk has been dispensed, and are thus enabled to judge if the cases are worthy. This particular association has a "Diet Kitchen Sewing Society" which supplies new and suitable garments for distribution to its beneficiaries. During ten months in 1906 there were dispensed 21,640 quarts of milk (90,640 to tuberculosis patients) and 84,671 eggs.

Japanese Military Surgery.—From observations made in the field by von Manteuffel, one should operate in neck wounds for hemorrhage only. In thorax await effusion, and then evacuate gradually, as otherwise infection might be sucked from the lung. In wounds of heart "touch not"; Manteuffel saw seven shot-wounds of this organ heal smoothly. Nothing new was observed concerning the spine—only the old gloomy picture. One should not operate where there is transverse palsy; if the palsy is not exactly transverse, but irregular, a laminectomy may be done. Improvements after spinal injury were few. Generally one should await possible absorption of blood-clot. Shrapnel wounds are generally infected. Bladder wounds heal smoothly. With the extremities follow the old von Bergmann precept: Do not disturb, and apply at once plaster of Paris. (From *Annals of Surgery*.)

PRACTICAL EXPERIENCE IN APPENDICITIS.*

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IF ONE is to write on the trite subject of appendicitis at this late day, he cannot refrain from offering an apology for bringing the subject before his readers.

The flood of literature pertaining to the diseases of the appendix, in the last few years, makes one feel shy to take the appendix as a theme for discussion.

Where, however, much has been said upon a subject, even about an insignificant appendix, there must be still room for improvement, and a few additional remarks may be of interest.

When we only consider to what extent our small appendix gives us alarm, fright, worry, pain when it becomes inflamed, and how indifferently it attacks the rich and poor, the king and the ordinary mortal, the scientist and the dummy, the expert on the diseases of the appendix as well as the one who knows little about it. When we further consider the number of cases we meet with annually, the disastrous results which at times follows the apparent mild case of appendicitis, then we must not stop short and continue to write and discuss, until the appendix will discontinue to be a source of annoyance to mankind.

The appendix Vermiformis usually lies in the right iliac fossæ, behind and to the inner side of the cæcum, from which it is the termination. Since the cæcum, however, does not occupy a fixed position, it follows that the appendix cannot always be expected to be found in the same place. When the peritoneum with which it is covered and mesentery which it possesses, becomes inflamed, and when adhesions begin to form, one must expect to find a contorted appendix, located and pointing in different directions. It may be directed behind or in front of the cæcum, or to either side of it. When, however, the appendix is filled with pus, or fecal concretions or anything which increases its weight, it will invariably be found thrown by gravity to the lower right quadrant in the abdomen, unless bound by adhesions at some other place.

Very often it is bent upon itself by adhesions, and when filled with pus constitutes an Empyema of the appendix.

The regularly manifested symptoms of appendicitis vary and are often in disproportion to the degree and extent of the inflammation. In the acute catarrhal form the patient is seized with sudden cramp-like pains, concentrically about the umbilicus, having a diameter of about six inches, in the first few hours, gradually localizing in the lower quadrant in the right side of the abdomen. The pain is boring and knife-like in character and is increased by moving the patient or during deep inspiration.

There is a sense of soreness and tenderness on the superficial part of the abdomen, and quite frequently the pain is referred to the right lumbar region, mostly when dealing with a retrocecal appendix.

The attack is usually ushered in with nausea and several attacks of vomiting, which last about twenty-

four hours. With this there is mostly constipation, at times diarrhœa. From the statement of the patient, one is inclined to diagnosticate it at first as a case of indigestion or some form of gastro-intestinal disturbance.

The constitutional disturbance is variable. In one case it appears so slight that the patient does not imagine the seriousness of his illness, while in another the vital forces of almost every organ are so far divergent from normal that the sufferer considers himself afflicted with the most serious malady. The temperature at the onset may go up to one hundred and two (102) degrees F. and the pulse rate is increased to about one hundred and ten (110), due to excitement or to the absorption of intestinal products. These symptoms lessen on the second day of the attack, when the temperature comes down to one hundred (100) degrees F. or may be normal, the pulse being rarely above normal, but of slightly increased tension. The patient remains in bed on account of the pain, and not by reason of general disturbance.

On examination we notice superficial respiration, the abdominal respiration is almost at a standstill, owing to the rigidity of the right abdominal muscles. On placing the full palm of the left hand on the right lower quadrant of the abdomen the rigid muscles feel like a hard card-board. At this stage it is interesting to observe a characteristic diagnostic point in appendicitis, by having the patient lie upon the back, the feet resting on the bed and the knees being steadied by a third person. With the right hand gently press on the left side on the lower or upper quadrant of the abdomen, directing the abdominal contents of that side towards the diseased part, and there is invariably felt in about three out of every four cases, a tapping or knocking at the inner part of the rigid muscles, beneath the palm of the left hand, which corresponds to a point of the location of the diseased appendix.

Perussing or auscultating the rigid muscles are useless and annoying to the patient. The symptoms gradually subside in from two to seven days, all subjective disturbances disappear, and the patient recovers from the first attack, but not from the pathological changes in the appendix. In cases of appendicitis with tumor and abscess formation, the symptoms are much greater. There are sharp pains in the whole abdomen, high fever, small and rapid pulse. The vomiting is persistent, often lasting two or three days, and later is bilious in character.

The abdominal muscular rigidity is more marked and the entire abdominal wall may be contracted or distended. The mildest pressure of the abdomen above the inflamed viscera causes pain, and it is in this state when the above referred to diagnostic point is of greatest value. The method of eliciting the point of greatest tenderness by pressing down with one finger is, to say the least, contra-indicated.

A newly formed abscess wall easily ruptures when attacked by a finger of blunted tactil sense. Usually on the third day the abscess is felt as a distinct tumor, having definite boundaries.

In those unfortunate cases in which the abscess is ruptured and a spreading peritonitis develops, there is a diffused pain all over the abdomen accompanied with increasing distension.

Where the abscess is formed and lies retrocecal, the anterior abdominal wall is not much affected, being

*Specimens presented at the meeting of the Alumni of Beth Israel Hospital, New York, on January 31, 1907.

interposed by the resisting intestine. Those tumors which are the result of inflammatory induration of the cæcum are referred to by the patient as painful areas of the right lumbar region, and resemble tumors of the right kidney. Quite frequently most serious pathological lesions are encountered in which the appendix is gangrenous, or is sloughed in an abscess cavity, or is the seat of an empyema, while the clinical picture is astonishingly mild, resembling that of a catarrhal condition. It is in these cases that operative delay is most dangerous, and an accurate diagnosis and prompt action is very essential to save the patient's life.

The following is a group of cases in which the symptoms are severe and the pathological lesions very mild:

Case I—J. C., female, 28 years of age. Married six years; sterile. Always in perfect health. Six hours before I was summoned, the patient was seized with general cramps in the abdomen, which caused her to go to bed. She had vomited twice. Friends in the house applied hot poultices to her abdomen, and gave her a soapuds enema. The pains were not relieved and the enema brought no results.

On examination I found a diffuse rigidity over the entire lower right quadrant, with marked tenderness. Temp., 102.6 F. Pulse, 108. I ordered ice to be applied to the painful area of the abdomen and a sweet oil enema. I returned the next morning and found the patient in severe pain, with knees flexed on the abdomen. Enemas were ineffectual. Temp., 102 F. Pulse, 130. I sent her to St. Mark's Hospital, New York, where I operated on her three hours after, and found a long catarrhal appendix in the right iliac fossa. Ovaries and tubes on both sides examined and found normal. The day after operation the patient's temperature was 99 F. and pulse 80. She left the hospital cured on the twelfth day.

Case II—M. H., female, 35 years of age. Married, has two children. She visited my clinic at the German Hospital dispensary, New York, regularly twice a week for about a year and a half, for pain in the right iliac region and for endometritis. About three or four times in the year this pain in the appendical region became so severe that she had to go to bed and employ a physician. At times she returned with the diagnosis of appendicitis, made by men in different clinics. Her general condition otherwise was good. Bowels moved freely two and three times a day. Her last attack was so severe that she asked me to remove her appendix. The operation was made in a private sanitarium. I removed an appendix four inches long, slightly catarrhal, with white longitudinal streaks in the mucous membrane. The mucosa was atrophied and smooth. It resembled a cirrhosis of the appendix. The adnexa of the uterus were normal. Uneventful recovery.

Case III—B. H., female, 42 years of age. Gave birth to eight children. Always in good health, except six months ago, when she suffered from a severe attack of colicky pain in the abdomen, which lasted two days. The present attack began four days ago with vomiting after considerable nausea, constipation and severe pain in the right iliac region. Her family physician, Dr. M. Cimberg, treated her very diligently and properly for appendicitis. Temp., 102 F. Pulse, 110. Tongue coated. After seeing the patient in consultation, I suggested removing her to St. Mark's Hospital, for observation. In the hospital I ordered high enemas, consisting of turpentine and soapuds, which resulted in the expulsion of two large round worms, each about nine inches long. Two days later a similar enema brought one more worm of the same type. All symptoms of pain, temperature, etc., subsided, and the patient left the hospital cured on the sixth day without an operation.

Case IV—B. M., male, 40 years of age. Father of six children; no previous attack. Six months ago, his son, 18 years old, was operated on for appendicitis; two months later a son 15 years of age was also operated on for appendicitis. The father took sick five days ago with severe pain in the abdomen, which finally settled in the lower right quadrant of his abdomen. When I first saw him I was informed that he had been seen by three different physicians and that they all agreed that he had a fulminating attack of appendicitis. On examination I found a frozen section of the abdominal wall in the region of the appendix, the result of a continuous application of an ice-

bag filled with ice and salt, for five days and five nights. Deep pressure with the full palm of the left hand elicited a resistance at McBurney's point. The patient looked much worried, and constantly kept his knees flexed, claiming to feel less pain when in that position. Temperature, 101 F. Pulse, 108. Two days later I operated on him, and removed an appendix three inches long, showing a mild catarrhal condition.

This group of cases represents a fair example of deceit between the alarming symptoms and the pathological findings, brought about by an attack of appendicitis. Had nature always been so kind as to guide the practitioner to advise operation, there would rarely be cause to mourn over patients frequently lost by unnecessary delay and postponement, with the hope of passing over an existing attack.

The following cases are "puzzles" and should be a warning to those who advise waiting with the operation for the next attack.

A group of cases with almost no symptoms to warrant serious pathological lesions.

Case V—M. I., male, 24 years of age. There had been no previous attacks. Five days ago the patient suffered from general pain in the epigastric region about one hour after breakfast, and subsequently on eating dinner became nauseated, and vomited soon after. The pain at this time extended all over the abdomen, but subsided towards evening after an effectual high enema with soap and water. The next morning the patient was well, and although he felt a slight pain in the right iliac fossa, he was able to make a heavy day's work at the machine in a cloak factory. This made the pain more severe, so that he went to bed after returning home. The physician who was called told him that it was indigestion. Another physician who had seen him 24 hours later, explained to him that it was an attack of one of those cases of appendicitis which amount to very little, and which usually subside in two days without interference.

Examination:—There is a rigidity diffused over the right lower quadrant slightly tender. This rigidity extends about two inches to the left of the linea alba. Temperature, 100. Pulse, 80; leucocytes, 14,000. Operation:—In the lower part of the cæcum is an abscess with a spreading peritonitis. The appendix was gangrenous and behind the cæcum. The wound was closed with drainage. The patient recovered and left the hospital in three weeks.

Case VI—M. R., female, 32 years of age. No previous attacks. Took to bed for pain in the right iliac fossa four days ago, after experiencing pain in the epigastric region the day before. There was some tenderness and two attacks of vomiting. Bowels moved freely after a dose of castor oil. Temperature, 99.8 F. Pulse, 70. Leucocytes, 16,000. This entire lower quadrant was tender and rigid. A mass the size of an orange could be felt.

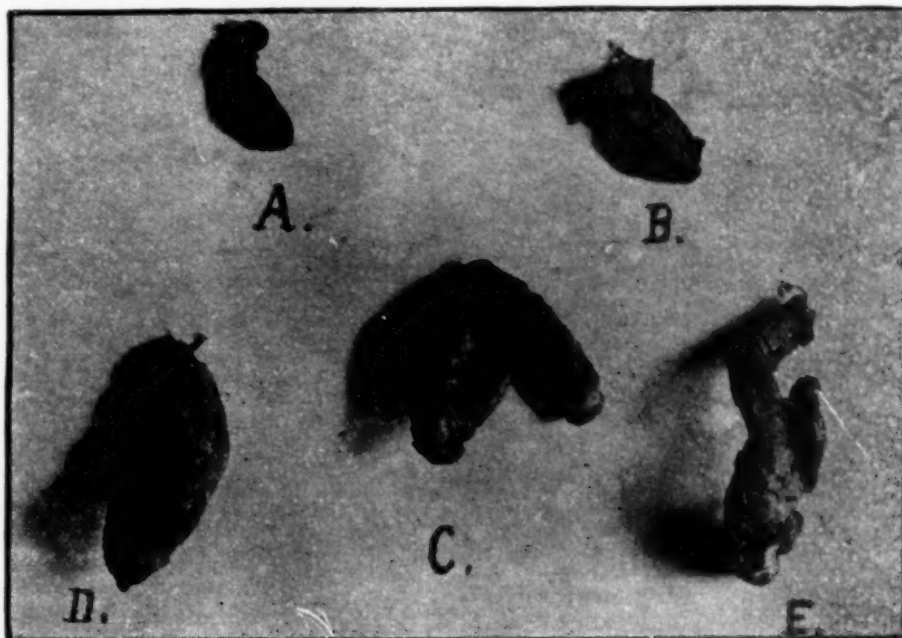
Operation:—The appendix was found in a mass of adhesions, curled up and bent upon itself at a right angle. The interior of the appendix was filled with pus, its tip was ruptured and the pus was escaping in drops. Fibrous bands had formed which held the appendix in that kinked position. (The appendix is illustrated in Fig. C). The patient left the hospital cured in sixteen days. Two months later the husband threatened to sue me for having afflicted pain and suffering to his wife and having subjected her life to great danger, by operating and removing her appendix unnecessarily, and that he was informed by the physician who treated her two days before I was called in that she had no appendicitis, and the operation was performed for the only purpose of practicing on his wife, and that he believes the statement of his former physician to be true. I showed him the specimen, which I luckily preserved in a small glass jar, bearing the name of his wife, and also opened my book containing a record of all my operative cases, and read to him the operative findings of his wife's case as described above. I have not heard of him since.

Case VII—B. S., female, 39 years of age, has complained for two days of epigastric pain, repeated vomiting and constipation. The following day the pain shifted to the lower right quadrant of the abdomen. The muscles in that region were painful and tender. Temperature, 101. Pulse, 84. On examination I felt a lemon-shaped mass, very painful on slight pressure. I advised immediate operation, and was promptly discharged from the case. The next day one of the family

called to tell me that two different physicians had decided that the case was not operative. The patient had improved and felt much better from the medicines given. I heard nothing from this case until six days after my first call, when I was again summoned. I found the patient sitting in bed, with her face bearing a septic look. She claimed to feel much better. On examination, I found a diffused tenderness all over the abdomen, equally painful in the left side as well as the right side. The lemon-shaped mass had entirely disappeared. The skin over the entire abdomen was somewhat doughy. I suggested sending her to St. Mark's Hospital for observation. The patient consented to go to the hospital, but would not go in an ambulance or carriage, and, to prove to me that she was able to go in the car, went out of bed and dressed in my presence. She subsequently went in a carriage to the hospital, but refused to give her consent for operation. The chart of the institution shows that she entered at 5 P. M.; temperature, 103. Pulse, 140. The next morning at 9 o'clock I saw her

Six months ago while attempting to leave a car which stopped suddenly, fell with the right side of his abdomen against the edge of the back of the seat in front of him. He soon after developed a right inguinal hernia. Three days since he suddenly felt sharp pains in the right lumbar region, headache and fever.

Examination: Patient is in bed, looks haggard and thin; temperature, 102 F.; pulse, 96; has not vomited. Bowels move daily. Abdomen soft on pressure and painless. In the right kidney region he complains of excruciating pains, shooting down the line of the right ureter. Urine examined and found normal. Operation: I proceeded to operate on the right inguinal hernia, and after opening the sac introduced my index finger into the abdomen, for definite diagnosis. I found a hard mass in the abdomen. After completing the herniotomy on the Bassini method, I opened the abdomen three inches in length on the outer border of the right rectus muscle, and found on the posterior part of the abdominal cavity the cæcum and two inches of the ascending colon, very much thickened and hard. The blood



in bed asleep, with eyes half closed, cheeks flushed, skin bearing a death-like color. She died four hours later.

Diagnosis—Ruptured appendicitis, followed by diffused septic peritonitis. Autopsy was refused by the family.

No set of cases can more forcibly stand as a warning to prompt and early operative interference than the last three cases. The time when to operate and for how long a case should remain under observation cannot be definitely stated. The rule that a temperature above 100 F. and an increasing pulse rate, with co-existing tenderness in the right lower quadrant extending to the left side of the linea alba, is a positive indication for immediate operation, is good. Those cases, however, which have not such acutely palpable symptoms, should not be permitted to die for want of the missing sign. When we encounter patients with normal temperature and normal and sub-normal pulse rate, with only slight tenderness in the right iliac region, which are found at the operation to possess gangrenous appendices and abscesses, it will be a much safer rule to operate on the least suspicion of appendicitis.

A group of cases with symptoms pointing to different diseases:

Case VIII—J. E., male, 40 years of age, married. Laborer.

vessels on the cæcum were tortuous and engorged with blood. The appendix (shown in specimen D) was firmly adherent from base to apex to the posterior surface of the cæcum, very much thickened and gangrenous. Several spectators at the operation believed it to be carcinoma of the cæcum, and ascending colon. The patient left the hospital cured in two weeks. Four weeks later he entered the Mount Sinai Hospital, where he underwent an operation for subphrenic abscess of the right side, likely the result of an infection carried up by the lymphatic channels or by infiltration through the retro-peritoneal tissue from the previous operation. The patient gained thirty pounds in eight months after the operation.

Case IX—M. H., female, 26 years of age, married. Had an attack of jaundice a year ago, which lasted one week. Four days later she felt a chilliness all over her body, with slight headache; vomited; constipation; very nervous; complains of pain in the back.

Examination: Skin is not jaundiced. Patient is in bed. Temperature, 100; pulse, 84. The abdominal muscles on the right side from the McBurney's region up is rigid and tender on slight pressure.

Operation: Gall bladder is normal in shape, color and size, and permitted to remain unopened. The appendix four and one-half inches long, inflamed and directed upward to about one inch from the fundus of the gall bladder, was removed. Patient left the hospital cured on the tenth day.

Case X—A. S., female; 39 years of age. No previous attack. Patient has always been in excellent health. Menstruated regularly. Four days ago she felt sudden cramps in the lower part

of the abdomen equally severe on both sides. Vomited four times the first day and continued to vomit two and three times daily. On the day of operation the vomited material was fecal in character. Constipation was not relieved by repeated enemas. No flatus passed. Abdomen distended and rigid. Temperature, 101 F.; pulse, 84.

Operation: Incision in the median line below the umbilicus. The intestines were distended and covered with fibrin. Above the right iliac synchondrosis I found a walled off abscess cavity, which contained about an ounce of pus. The appendix, which was gangrenous (shown in specimen E), was ruptured immediately above the apex, I removed from within the cavity. The abscess cavity was carefully sponged out and drainage established. The day following the operation the patient had a good movement of the bowels. Temperature, 101; pulse, 84. Patient left the hospital three weeks after the operation, cured.

Case XI—A. C., female, 32 years old, married. Felt pain in the pelvic region about two months after her third confinement four years ago. The pain at that time lasted nine days, for which she remained in bed. Ever since then she has been suffering from leucorrhœa and pain in the pelvic region. On examination six months ago, I found an enlarged ovary and a tender tube on the right side, for which I treated her twice a week. Two days before operation she complained of pain in the right pelvic region, vomited three to four times, and there was constipation not relieved by repeated enemas. Temperature, 99; pulse, 80.

Operation: Median incision. The right ovary is pressed together flat, the size of a silver dollar, the appendix adherent to it with the tip about three-fourths of an inch, is highly inflamed and angry looking. The appendix, right tube and ovary removed. The wound closed without drainage. The patient left the hospital two weeks after operation.

Case XII—M. W., female, 30 years of age, married. Gave birth to two children, the youngest one is four years old. Menstruated regularly every four weeks. Last menstruation was a week ago, after being two weeks overdue. Throughout the entire week she suffered from pain in the pelvic region, vomited a few times. Bowels moved regularly.

Examination: Patient is in bed. Temperature, 100; pulse, 80. Slight pressure over the right iliac fossa gives pain. Vaginal examination reveals a mass, the size of a peach in the right side, slightly movable and painful on upward pressure. On removing the finger it was stained with blood. Operation for Ectopic pregnancy. Median incision. The appendix was found acutely inflamed, with bands of adhesion extending from it to the right ovary, which was enlarged, and contained three small cysts. All adhesions slowly broken, I removed the appendix, punctured the existing cysts in the ovary, and permitted it to remain. The abdomen was closed without drainage. Uneventful recovery.

This group of cases well illustrates the wide range of symptoms the diseased appendix frequently gives.

Case nine had all the pathognomonic symptoms of gall bladder trouble, while on case ten very few surgeons would have doubted the existence of intestinal obstruction.

There is no known method to differentiate the existence of intestinal obstruction, gall bladder trouble, or right pelvic lesions from that of appendicitis, when the symptoms of one of the diseases is fused with that of the other.

The only friend and life saver to the patient in those cases is the knife in the hand of the surgeon who is ready to promptly meet every emergency he may encounter.

The next is a group of chronic cases of appendicitis with grave pathological lesions:

Case XIII—H. B., male, 12 years of age. Began to suffer from general cramps in the abdomen about twenty months ago. These painful attacks returned very frequently, almost every two or three weeks, but was always relieved by hot poultices and cathartics. He was seen by me for the first time two months before the operation during one of his attacks which lasted two days. On examination at that time I found the abdominal muscles soft, with apparent relief from the pain on pressure. The most pain was immediately below the umbilicus. I put him on soft diet and ordered daily enemas which relieved

him for the time being. Ten days later he had another attack. I then advised operation, which was objected to until the day before entering the hospital, when he was brought to my office in a doubled-up condition. The examination in the office revealed a hard tumor about 2 x 2 inches in dimension in the right iliac fossa.

Operation: The appendix (shown in specimen A) was short, thick and gangrenous, imbedded in a mass of adhesions at the lower and anterior part of the cæcum. Two bands of adhesions passed from it to a coil of small intestine. The patient left the hospital, cured, on the ninth day.

Case XIV—Rose N., 15 years of age, had three attacks during the year, each time remaining in bed about fourteen days. The last attack was a week before operation. Examination revealed slight tenderness on deep pressure in the right iliac region. On rectal examination, a hard mass could be felt in the appendical region.

Operation: The appendix was behind the cæcum, short, thick and black (shown in specimen B). It was bound down by adhesions. There was considerable inflammatory infiltration, which on separating brought to view about a drachm of pus. Complete recovery in two weeks.

Case XV—B. C., male, 19 years of age. Had no previous attacks. About ten days ago he had a slight chill, vomited and suffered from repeated nausea. Two days ago he began to feel a dull, aching pain with some tenderness in the appendix region. On examination there was no mass noticeable, but slight tenderness on pressure.

Operation: Appendix was three inches long and pressed down into the pelvis. There were several old adhesions and a sharp constriction in the center of the appendix. Uneventful recovery.

Case XVI—P. H., male, 43 years of age. Real estate broker. Had one attack two years ago, since then he experienced occasionally general cramps in the intestines. Four days before entering the hospital, strong pains returned in the right lower quadrant of the abdomen. Examination: Pulse and temperature, normal. On slight pressure the right lower part of the abdomen reveals a sausage-shaped mass about three inches long. Tender on mild pressure.

Operation: The appendix is two and a half inches long, twisted upon itself. The meso-appendix was much thickened and cord-like in consistency. Recovery.

Case XVII—B. F., male, 21 years of age. Had two previous attacks within 10 months. Six days ago pain returned in the right iliac region and at the umbilicus. No nausea or vomiting. Examination: No constitutional irregularity. At the site of pain there is rigidity and some tenderness.

Operation: The appendix was found imbedded in the retro-cæcal tissue, very much thickened and three and one-half inches long. Recovery.

Case XVIII—M. G., male, 26 years of age. Medical student. Suffered from articular and muscular rheumatism for the last 6 years. Six months prior to the operation he had an attack of pain in the right iliac region, which was diagnosed and treated for rheumatism of the psoas muscle. He remained in bed four days with all the symptoms of appendicitis and recovered. Three days before operation, the attack of pain in the right side returned with more severity than the last time. No vomiting. Temperature, 101; pulse, 80. Examination: Tenderness and slight rigidity in the right iliac region. Pain on deep pressure over the course of the right psoas muscle.

Operation: The appendix was removed from a bed of adhesions, which had firmly fixed it to the sheath of the psoas muscle. No drainage. Primary union. Patient left the hospital on the fourteenth day.

This case is interesting from the fact that the patient was subject to attacks of rheumatic pains and may have had an attack of appendicitis superimposed on an underlying inflammation of the psoas muscle. It is very likely that the inflammatory state of the muscle has been the causative factor of the diseased appendix.

Many cases of the chronic form of appendicitis undoubtedly begin in an unnoticed manner and are in existence for many years.

A goodly number who have chronically diseased appendices pass through life without knowing or feeling the existence of a pathological lesion. This is borne out by the statistics of Byron Robinson in the

Annals of Surgery of April, 1901, who has found many diseased appendices out of three hundred (300 male and 118 female adult autopsies made by him. Many of them were adherent to the psoas muscle.

Among the most difficult cases of chronic appendicitis to diagnose are those in which there are practically no other symptoms than those of dyspepsia and intestinal indigestion. If on careful palpation and deep pressure in the right iliac fossæ, and simultaneous examination with the index finger of the other hand in the rectum, the appendix is found enlarged or tender, it is best to remove it.

These chronically diseased appendices when permitted to remain might at any time terminate in a suppurative or gangrenous attack without the least warning.

CONCLUSIONS.

I. When on placing the left palm on the rigid muscles of the lower right quadrant, and on gentle pressure with the other hand on the left side of the abdomen, an impulse or beat is felt, the diagnosis of appendicitis can be conclusively made.

II. Severe symptoms are not always signs for grave pathological lesions, and conversely mild symptoms are in many cases accompanied with most serious pathological processes.

III. Never omit to order an enema with turpentine as long before the operation as possible, to give the patient the benefit of the doubt, if you suspect intestinal worms.

IV. The application of ice, sufficient to completely freeze the abdominal wall and viscera beneath it, is a scientific blunder equal to the giving of morphine to cure the malady. It masks the symptoms and is liable to cause gangrene of the skin.

V. Always save the pathological specimen, preserve it and have it carefully labelled with the name and address of the patient from whom it was removed. It is valuable evidence in conjunction with careful records of the case, in suits for malpractice or any other medico-legal complication which may unexpectedly arise.

VI. Probable diagnosis of appendicitis is sufficient cause for surgical intervention, while missing links to the chain of symptoms, to make a positive diagnosis, may deprive the patient's chance of recovery through operative delay.

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The Exaggerated Ego has been defined by an eminent alienist as "a disproportionate idea of importance of self, a belief that one is clothed with powers, capacity and ability far above normal or above those actually possessed." Rather a roundabout description, this, of a swelled head.

THE MANAGEMENT AND TREATMENT OF SUMMER DIARRHŒA IN INFANTS.*

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IT is a self-evident proposition in medicine, that in order to combat disease successfully a clear and distinct knowledge of the causative factors and the manner in which their evil effects are produced is absolutely essential. It has been recently stated by competent authorities that little or nothing new has been added in the last decade to our better treatment of summer diarrhœa in infants. If such is true, it is, perhaps, owing to our want of a better conception of the forces at play. The matter to be discussed in this paper relates only to the management and treatment of the disease, but the why and wherefore of this will necessarily involve a brief consideration of the essential causes. Objection has been raised by some to the term "summer diarrhœa" as misleading, and hold the view that the disease is entirely of germ origin, while others would have us regard the affection as purely an indigestion, when occurring in infants under one year of age. The truth is more likely to be found in a compromise between these two views. Undoubtedly the hot season is a potent factor in both directions, as the vast majority of diarrhœas in infants occur at this time of the year. A careful consideration of the operation of excessive heat on the one hand, and bacteria on the other, as pathological factors, will throw light on the solution of the subject.

The human infant up to six months of age requires heat and heat-producing food for its successful growth and development, provided always that there is a normal means of disposing of the surplus heat by radiation and conduction by evaporation. In summer excessive and prolonged heat in combination with humidity of the atmosphere prevents the dispersion of the surplus heat of the infant economy. This, in effect, reacts upon the organism, causing a depression of the entire physiological functions, due to impairment of the already feeble thermo-taxis nervous mechanism.

Heat from 60° F. to 140° F. favors the growth of the bacterial flora. From 140° F. to 210° F. it destroys the germ and its spores. Heat rapidly increases bacterial growth in cow's milk, the usual food for artificial infant feeding. This may result in the production of a virulent toxine, as tyrotoxicon, or merely in the invasion of the lactic acid bacillus, causing acute indigestion. Bacteria indigenous to the intestinal canal, such as the colon bacillus and streptococcus pyocæneus, may by symbiotic action become virulent. The Shiga bacillus is said to be present where there are clinical evidences of dysentery. Tyrotoxicon from decomposed cow's milk, a ptomaine developed from the growth of bacteria upon the albumins, causes severe symptoms of collapse. This toxine usually occurs when the animal heat of the cow's milk is allowed to continue indefinitely, and is undoubtedly favored by the increased heat of the summer season. The other principally injurious bacteria are those of an acid producing nature, chief of which is the lactic acid bacillus. This bacteria is now admitted to infect the very best of commercial cow's milk. Even when the number is small they continue to multiply in the infant's stomach, causing the formation of the tough, leathery

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curd which defies the digestive capacity of the infant. These curds are likely to act as an irritant in the intestinal canal, generating gases, producing colic and increased intestinal secretion. Other food besides cow's milk may become a carrier of infection. The commonest of this class, perhaps, are animal soups. These furnish an excellent culture medium, even when well prepared, if kept for any length of time. They are especially apt to cause diarrhoea when the meat of which they are made has undergone even the slightest decomposition from improper care or exposure, as the ptomaines formed are not affected in the process of cooking.

It is now well recognized that the normal gastric secretion containing hydrochloric acid can well dispose of most bacteria entering the infant stomach, excepting, of course, the acid producing bacteria. But when through the depressing effect of excessive and prolonged summer heat upon the physiological functions, and more especially upon the gastric secretion, where the amount of hydrochloric acid, normally small in comparison with that of adults, is reduced, their disposing power is lost. A vicious combination of the bacterial flora from without with those indigenous within, which under normal conditions are harmless, render these latter virulent. This is what is now known as *symbiosis*.

All varieties of summer diarrhoea in infants are due, in my opinion, to the same primal cause, modified by the entrance into the intestinal canal of various pathogenic germs, and the development by evolution and symbiotic action of others indigenous to the intestinal canal, such as the colon bacillus, and the as yet undetermined class in which may be placed that form we now recognize as the Shiga bacillus. That variety of summer diarrhoea in infants, formerly known as enterocolitis, I regard as due to pathological changes produced by the germ growth upon the intestinal tissues. The production of heat-stroke in infants may possibly complicate the clinical study of summer diarrhoea. There is no reason why it should not be regarded as a distinct affection.

When we meet with the severer form of summer diarrhoea where the system has become thoroughly poisoned by virulent toxins, as in cholera infantum, we have an illustration of the extreme reactionary effect of summer heat upon the animal economy in the production of collapse, with reduced or subnormal temperature.

MANAGEMENT.—The term management in the title of this paper refers to the closest attention in the carrying out of details, and is regarded by the writer when applied to the summer diarrhoea of infants, as of co-equal importance to therapeutic measures; in fact, it may be shown later on to be more important. One great principle upon which too much emphasis cannot be placed is involved in the management of this complaint, and that is:

REST.—Rest for muscular action, in which is included the act of digestion and peristalsis of the intestines, rest for the blood circulation and rest for the special senses. This object is secured by attention to diet, careful instructions as to its preparation and method of giving it, handling of the little patient, the observance of strict cleanliness to the minutest detail, and suppression of foul odors, keeping the body cool with baths

and iced drinks, and an abundance of fresh air and the maintenance of quiet.

In the consideration of the management of summer diarrhoea in infants too much importance cannot be placed upon the idea wisely suggested by Kerley, of keeping the infant's digestion in order during that part of the year when summer heat cannot be reckoned as a factor. It is those infants whose condition all the year round is below the standard of health that are most liable to be affected by the influence of summer heat. Such are the rachitic and those whose tissues are flabby from poor digestion and assimilation. If the view that excessive and prolonged heat combined with a humid atmosphere as a potent causative factor is kept in mind, it becomes more plausible why clinical experience has taught us that Rest is the main principle and end to be gained in the management of the dietetics of summer diarrhoea in infants. Normal infantile digestion has been shown to be more mechanical than chemical, in so far as only one article of food, milk, is used. Moreover, all of the physiological functions are like the individual itself—weak, and, therefore, are easily exhausted. Such being the condition, it logically follows that in the use of food, and more especially an artificial one, the idea of conservation of vital force must be kept in view. As has been already said, the effect of excessive and prolonged summer heat is to depress and weaken to an undue extent the infant's physiological functions and nerve centres. When we consider the process of heat production from calories of food in the human economy and the manner of disposal of the excess, much light is thrown upon the way indigestion occurs. Normally the overplus of heat generated within the animal tissues in the process of metabolism of food, which is not used as energy, said to be two-thirds of the total amount, is dissipated by the skin in the process of radiation and conduction by evaporation. Now, if the external temperature surrounding the body be as high as the normal body temperature, and there is a humid atmosphere, it must follow that there will be no radiation and very little evaporation. Hence the temperature of all the body tissues will of necessity be raised above the normal, which for all pathological purposes acts the same as fevers. The first effect of this condition is unquestionably to lower the enervation of those tissues whose peculiar function is to preside over the process of digestion and assimilation of nutrition. This condition of lowered vital activity greatly favors indigestion of food that is ordinarily easily digested, by causing exhaustion of muscular energy of the gastric walls as well as altered state of its secretions. It thereby favors increased bacterial growth and production of toxins which reacts upon the food ingested and at the same time upon the nerve centres, disturbing the influence of the latter upon the animal mechanism, and as a result diarrhoea occurs. In one way and another all of the internal organs finally become involved, most markedly the liver and kidneys, and to a more or less extent the circulatory apparatus.

It is therefore incumbent upon the physician after the disturbance of summer diarrhoea has become manifest, to place the little patient in a condition of complete and perfect rest, which, as may be readily understood, is in itself the dynamic antagonist of heat production. When the ordinary food is entirely sus-

pended or given in a much diluted form, we aim to accomplish this end by giving the digestive tract the lowest possible amount of physiological work to perform. The idea that the change of food from proteid and fat to carbohydrates solely, reduces the amount of bacterial growth, may be in a measure true, but the more rational explanation that it aids the weakened mechanism to perform its task in an easier manner with less expenditure of energy, is much more acceptable to our intelligence.

In this connection the question of nutrition, in view of the rapid loss of weight and shrinkage of tissues becomes a most important subject for consideration. We are brought face to face with the question whether to continue giving food which serves as fuel in further maintaining the disturbance, or of withholding it entirely until the functions of digestion can be restored to their normal state. It is fairly reasonable to infer that this rapid wasting is due to a drainage of the liquid element of the blood and tissues into the intestinal canal, though fat tissue is consumed at the same time, which later is most apparent on the inner and upper thighs. It is for this reason that if food is given at all, it should be of the easiest digestible character, with no requirement on the part of the normal functions for chemical changes, also that it should furnish a poor culture medium for bacteria. Such a food, when used in entirely moderate quantity, is found in *starch*, provided always that it has previously been subjected to the chemical changes of heat. We know that starch in the raw state cannot be converted by the secretions into sugar, but as a food for infants suffering from summer diarrhoea it requires something more than the degree of heat sufficient to burst the cellulose envelope of the starch cell. In whatever form starch is used for feeding these infants, it should be subjected to a temperature high enough and long enough in duration to convert it into *achro-odextrine*, which on contact with saliva is instantly changed into maltose or grape sugar. Sugar is readily assimilated and provides a poor culture medium for the lactic acid bacillus, which may be said to be always present where milk has been previously used. (It has been demonstrated by competent authority that the food which nature supplies for tropical diet—viz., fruits and cassava, is one consisting chiefly of carbohydrate elements, as the fats and proteids are not congenial to tropical needs.)

For the reasons just stated, the first and absolutely most necessary step in the management of every case of summer diarrhoea in infants, whether breast or bottle fed, is to *stop the nursing* and change to either pure water, filtered or boiled, or a weak food, such as toast water, barley water, rice water or a very thin gruel of browned flour, called by the Germans "meal-soup." Meal-soup is prepared by browning two tablespoonfuls of good wheat flour in a clean frying-pan, with continuous stirring. A pint of equal parts of milk and water is brought to a boil and a heaping tablespoonful of the browned flour blended with water added and stirred in. The mixture is then removed from the fire. Toast water is made by pouring boiling hot water over a couple of slices of stale wheat bread that have been evenly toasted on both sides over the fire and placed in a deep bowl that will contain a quart. The toast should be covered by the hot water and then allowed to remain until cool. The supernatant

water is afterwards poured off into a clean vessel without disturbing the toast. Barley water and rice water are made with whole grain and should be kept boiling for not less than one hour. If allowed to stand in a high vessel until cool the supernatant water can then be poured off into a milk bottle until wanted.

Whatever form of food is given, the quantity should be small, from two to four ounces at a time at intervals of every one or two hours. The great principle involved is to use a *diluted food or none at all*, in order to give the digestive functions a REST. After a lapse of twenty-four to forty-eight hours, according to the condition of the patient, koumys, matzoon or kefir can be used, also lacto-somatose, arrowroot or the boiled flour ball. All of these are to be carefully given in moderate quantity and the effect upon the bowels closely watched. Return to either the breast or pasteurized milk should be gradual in severe cases.

As absolute rest and entire quiet is the essential object, the child, if not kept in bed, should lie on a pillow in the mother's lap or in her arms, when carried about. No tossing nor patting of the child should be allowed. Rubbing of the abdomen to relieve pain is also harmful, as it only tends to excite peristalsis of the bowels. The same may be said of all external applications. Attention to environments is to be reckoned of the highest importance. Mothers should be warned and instructed to practice cleanliness to the minutest detail. This applies with especial regard to the prevention of the use of "comforter-nipples," or fruitless nursing, also to the care of the nipples whether human or rubber. A simple wash of boric acid solution for these is far preferable to washing out the baby's mouth. It is almost needless to suggest that the nursing bottles should be thoroughly cleansed with boiling water after using, and not be allowed to stand about with contained remnants of food. The clothing should be clean, light in weight and porous to air. In fact a single garment is sufficient on warm days, and the infant will be observed to appreciate this as a pure comfort. Above all, mothers should be impressed with the great value of a bountiful supply of FRESH AIR, both by day and by night. Every plan to secure this end should be devised by the suggestions of the attending physician, such as early morning walks in parks, water excursions, outdoor living in tents on open grounds or on the roof of houses or even on fire escapes. Demand for an abundance of fresh cool air in the management of summer diarrhoea needs no argument. It is a *sine qua non*. Without it all therapeutic measures in severe cases are virtually useless. I believe that crowd-poison is one of the most effective contributing factors in the production of summer diarrhoea in infants. From statistics kindly furnished me by Dr. Darlington, it appears that the death-rate from this complaint in infants under one year of age has been wonderfully reduced in the last fifteen years in the old city of New York. Out of every 1,000 deaths occurring in the months of July, August and September, those occurring under one year of age were reduced from 170 per 1,000 in 1892 to 85 per 1,000 in 1903. And yet in 1904 and 1905 there was a sudden increase to 102 and 105 per 1,000 respectively. This has been ascribed by Dr. Darlington to the general influence of an increased virulence of all infectious diseases prevailing for these years. I am rather inclined to think that a most careless observance of

such important sanitary laws as ventilation, etc., by a large influx of newly arrived emigrants of an inferior class, for those years, crowding into already densely populated districts, would be a more likely explanation of this strange increase.

In preaching the doctrine of cleanliness to mothers they may be induced to employ baths, either cool or tepid, for their infants. These also aid in overcoming the heat effect of the summer temperature. No possible harm can come of this practice in the management of summer diarrhoea when the infant is over three months of age and there are no signs of impending collapse. Especially is this true if a certain amount of friction with the hand is used while the patient is submerged. This helps to excite capillary reaction. I would advise a temperature not lower than 70° F. A tepid bath at 102° F. will often cause a sensation of relief from heat better than one of a lower temperature. Besides giving cold water liberally as a drink, pellets of ice may be freely given. Ice often helps to quiet nausea and vomiting.

THERAPEUTIC INDICATIONS.—Clear out the intestinal canal, check fermentation and eliminate toxins. In mild or severe cases, whether from a feeble state of digestion induced by excessive heat, or the ingestion of food infected by foreign bacteria, the first indication is best met by the administration of a promptly acting cathartic. Castor oil is liked by many, as its action is limited to the production of one or two stools only. But in many cases where the stomach is sensitive, as often happens, it is ejected. The same may be said of magnesia sulphate and Rochelle salts, which latter was a favorite remedy with Trousseau for adults. A more elegant and readily acceptable remedy is calomel in tablet form. When given in fractional doses of 1-10 of a grain repeated every half hour or hour, it acts as promptly as castor oil, at the same time appearing to have a more extensive therapeutical effect. This may reasonably be attributed to its action upon the liver and, perhaps, also its action as an internal antiseptic. It has always seemed to the writer that calomel manifested a cholagogue action, though this has been denied by such eminent authority as Rutherford, of Edinburgh, whose experiments were performed on dogs with large doses. Certainly in fractional doses of 1-10 of a grain it is possible that calomel may be converted by the hydrochloric acid of the gastric juice into the bichloride, which Rutherford admits to be a typical cholagogue. Whether its antiseptic action is due to the chemical change in the stomach or to its secondary effect in increasing a flow of bile is a matter of speculation. But further than this, its remedial effect in diarrhoea can be placed on purely physiological grounds. In any disturbance of the intestinal canal due to irritation, the blood circulation in that part is necessarily increased, and a drug that will by its elective action, like mercury, stimulate the cells of the liver, which is the great compensatory organ of the abdominal viscera to increased activity, will equalize the portal circulation by inviting the excess flow from the intestine to that organ. For this reason 1-10 to 1-20 of a grain doses of calomel at three or four hour intervals may be continued, often with excellent results.

Where there is high fever with vomiting and restlessness and other clinical signs of a toxic nature, a most useful method of clearing out the large intestine

is by means of irrigation. This may be performed in a cleanly and effective way by the use of the double tube of Kemp, with a normal saline solution at 70° F. (3i of chloride sodium to the pint). The reservoir containing the fluid need not be held more than three feet above the patient. The buttocks should be elevated higher than the head. Not only does irrigation clean out the lower intestines, which are liable to become the foci of pathological changes such as are found in enterocolitis, but at the same time it reduces temperature and replaces a certain amount of fluid to the blood and tissues, which has been lost through frequent intestinal discharges. It has also been shown by Thompson and others that it flushes the kidneys, which, it is now well known, are quite likely to become congested through the action of toxins absorbed from the intestinal canal into the general circulation. There are some cases, however, as those of true *cholera infantum*, where in my experience hot irrigations at 112° F. appear to have a far better effect in restoring the equilibrium of the general blood circulation and preventing lesions of the intestinal mucous membrane. Where vomiting is persistent, washing out the stomach may prove effective, but the performance of the operation sometimes causes so much resistance that it excites both patient and relatives to a high degree.

CHECK FERMENTATION.—In every case of summer diarrhoea in infants, whether mild or severe, an intestinal anti-ferment would seem to be clearly indicated. The main point is to select one of this numerous class that will act rapidly without adding to the gastric irritation. Bismuth and its salts, the subnitrate, subgallate or salicylate, fulfills this requirement and may be accepted as the type of intestinal anti-ferments. It has been my experience to find moderate doses of the preparation of bismuth (five to ten grains) fully as effective as larger and bulkier ones. I prefer to give it suspended in a mucilage of either tragacanth or acacia flavored with peppermint or cinnamon and combined with a fractional dose of mercury with chalk (1-8 grain).

Bichloride of mercury is certainly a most reliable internal antiseptic. I have found it to be of especial value when given in doses of 1-100 of a grain, in cases where the stools are of a dysenteric character. If it should eventually be confirmed that all summer diarrhoeas of infants were in reality dysenteries caused by the Shiga bacillus, then no better internal remedy need be sought than bichloride of mercury.

Lactic acid in five to ten drop doses diluted with water and repeated every two hours has been found highly beneficial where fermentation would appear to be due to the lactic acid bacillus, viz.: where the stools are very green and excoriating. It is probably owing to this fact that the buttermilk treatment is becoming so popular in Germany and France. One drachm of wheat flour is advised to be added to one pint of buttermilk and gradually heated to a boil, stirring continuously. It is fed in 3ss quantities, gradually increased. Carbolic acid (C. P.) is doses of 3i of a one per cent. and two per cent. watery solution will also be found most useful both as an anti-ferment and as a gastric sedative. Strange to say, however, there are idiosyncrasies where the vomiting is apt to be aggravated. The dose should be repeated every two hours. It can be said in favor of the use of carbolic acid solutions that they are nature's own anti-ferments,

being evolved in the process of normal intestinal digestion, as pointed out by Gillespie, in his work on digestion.

ELIMINATION OF TOXINES.—It will readily be understood that in our efforts to clear out the intestinal canal and check fermentation by the employment of such remedies as also influence the physiological functions of the liver, as the mercurial preparations, for instance, we at the same time in a measure aid in eliminating from the circulation the toxins that cause fever, convulsions and death. It is now one of the accepted dogmas of medicine that the liver is the paramount organ for destroying toxins in the animal economy. It is, in fact, the great alembic of the human anatomy and is our chief reliance for burning up, at it were, toxins. Besides the liver, however, the kidneys may also be called into play, and this is most easily and simply accomplished by an intestinal irrigation with normal salt solution. For not only does intestinal irrigation clear the lower bowel of bacteria and replace by rapid absorption the large loss of fluid from the blood ejected in the stools, but, as before pointed out, it simultaneously flushes out the kidneys that in themselves are most likely to be implicated in the general toxæmia.

The application of the principle of rest in regard to treatment in the controlling of intestinal peristalsis with opiates would appear obvious, and to my mind is good practice if used at the proper time and for the additional purpose of the relief of pain, which is the enemy of rest. After the intestinal tract has been thoroughly cleared out, the food restricted to weak carbohydrates, and there is yet pain and loss of sleep, I do not hesitate to administer five to ten drops of the camphorated tincture of opium as a single dose, or the hypodermic injection of 1-100 of a grain of morphine. I would not, however, leave opiates in the hands of the nurse to be given in repeated doses, for I believe they tend to prevent elimination. For a similar reason the use of astringents should be deferred until the acute stage has passed. There can then be no possible doubt of their usefulness. Tannigen may be regarded as the type of astringents, though Trouseau was fond of the use of krameria. Coto has also done good service as one of this class.

FOR SPECIAL SYMPTOMS AND COMPLICATIONS.—1-8 drop doses of wine of ipecac repeated hourly, 1-10 of a grain of cocaine hydrochlorate, or 1-2 grain of chlorotone will be of genuine service in controlling obstinate vomiting. Hypodermic injections of three drops of a 10 per cent. watery solution of chloral hydrate or three drops of sulphuric ether will produce wonderful results in the collapse stage of true *cholera infantum*. The following formula is traditionally famous in the same condition: \mathcal{R} Ol. anisi; ol. cajeputi; ol. juniper, aa $\frac{3}{4}$ ss; ether sulph., \mathfrak{z} iv; liq. acid Halleri, \mathfrak{z} ss; tinct. cinnamoni, \mathfrak{z} ii. \mathcal{S} . One drop every fifteen minutes in sugar water. The liq. acid Halleri is composed of one part of sulphuric acid to three parts of alcohol. In the conditions of acute cerebral anemia, commonly termed in the books hydrocephaloid disease, I have found an easily assimilated preparation of iron, such as the potassio-tartrate contained in the wine of iron, to be positively useful. For the condition of furunculosis following summer diarrhoeas, and in fact, as a good nutrient tonic during convalescence, I can

safely recommend the syrup of the lacto-phosphate of lime. Alcohol in the form of good brandy, whiskey or sherry wine is certainly useful when signs of exhaustion appear. It should be remembered that alcohol is present also in the fermented milks, as koumys, etc. An excellent substitute for alcohol alone may be found in liquid peptenoids, which contain sherry wine.

Finally, as to the serum treatment of summer diarrhoea in infants, I have only this to say: I do not believe the bacteriological case for all forms of this complaint yet proven, and if future work along these lines should place my judgment in error, I would not even then be willing to rely upon the serum treatment alone as a means of cure. It does not appeal to my medical sense of reason.

THE PHYSICIANS OF THE UNITED STATES.

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THE recent publication of a medical directory affords an opportunity for the study of the physicians of this country. This directory can be assumed to be fairly complete and accurate, as it has passed through various stages, and has now reached its ninth edition. This enables faults to be corrected and improvements added. There are still errors and omissions; there must always be a certain percentage of these faults. The area covered is so large and the number of physicians so vast that this is inevitable. Thus, some years ago, in a class reunion, we assumed that if our classmates were not in the directory they were dead or had retired from practice; we speedily found that this was a serious mistake; we found that quite a large percentage were not in the directory at all, so that it is possible for many men to practice and yet be unrepresented in such a work. Again, this is true of young practitioners and hospital residents.

For the purposes of study, however, we may assume that the work is accurate itself; errors probably balance each other, and run along at the same percentage. Again, names may be duplicated. This is the case of the writer; he is registered in Philadelphia and also at Paoli, Pennsylvania. There are other cases, undoubtedly.

It has been assumed that a physician requires a clientele of two thousand people to live fairly. If so, he cannot find this percentage in the United States. Again, the character of the practice must come into consideration. Two thousand people in a city's slums are far less than four hundred interesting, well-to-do invalids. Of course, this point cannot be considered in this discussion.

The first point of interest is the thorough dissemination of practising physicians. They are found everywhere; no climate is too cold or too warm, no region too wild or remote to be tabooed by the medical men. Gail Hamilton, the gifted writer, wrote an essay on "Five Miles From a Lemon." She took the lemon as the type of civilization, and "Five Miles From a Lemon" meant away from all conveniences. So it is with the doctors. "Five Miles From a Doctor" means being in the backwoods. If no doctor lives in your locality, you are lacking in modern conveniences. This wide diffusion of doctors accounts for the wide spread of disease. It shows that no region is exempt from its

chilling touch; no sunny clime wards it off; no happy combination of climate and temperature makes disease a stranger. It is a sad commentary on human life.

The directory's information has not been systematized, so in a few leisure hours, I have endeavored to glean a few interesting facts from its endless pages.

It is probable that no one would guess the portion of the United States that has the lowest ratio of population to physician. It is the District of Columbia, containing principally the City of Washington. It is true that this statement is somewhat misleading, for the District of Columbia is practically a city, with no rural portions; still, even allowing for this, the percentage is remarkably low. It is one physician to two hundred and fifty-five people. The natural explanation would seem to be that many army and navy surgeons are included in this list to lower the percentage, but a glance over the list shows this is not the fact. The great majority of physicians seem to be practitioners. Probably the real truth rests in the vast number of visitors, senators, congressmen, etc., which crowd the Capitol every year. It affords a vast field for productive work.

The next region in percentage is Colorado; it has one physician to three hundred and twenty-three persons, and this is easily explained by the fact that Colorado is one vast health resort, and where the invalids are, there are the physicians gathered together. Probably if we could know the number of invalids in the state we would find the average doctor has more work to do than his confrere in less sunny climes. If we exclude the District of Columbia as not being a fair comparison, Colorado would stand first on the list of states. There are in the state no great medical colleges to attract great staffs of physicians; the attraction is paradoxically due to the healthfulness of the climate. There are three small flourishing colleges, but with no great retinue of followers.

Naturally, next comes another great health resort, California, with one physician to three hundred and forty persons. This is due to the same reason that puts Colorado to the front. Again the fact is somewhat misleading as to its effects on the individual practice, for both states are filled with well-to-do invalids, and the doctors of these two states need not be unduly pitied. These two states are the only ones with a ratio below one in four hundred, for curiously enough, two territories come next, Indian Territory, with three hundred and seventy-three and Oklahoma with three hundred and ninety-seven. It is astonishing how many doctors are found in these territories; many places, such as Cleora, Cherokee Nation, with fourteen population, boasts a physician; Coody's Bluff has one for twelve people, while Irene, in the Creek Nation, has one for seven people; he boasts the romantic name of Sorelady; Senna has one to eleven; Moody's, one to fourteen.

In Oklahoma, doctors are also numerous; in Bison sixteen people have a practitioner for their own, Custer has one for seven, Hawley one for eight, Meers breaks the record with one to six, Oklahoma City, with a population of nineteen thousand, has one hundred doctors, or one to one hundred and ninety.

Of course, in these small towns, the physician may cover a wide area, not being confined to his village for practice. Again, the population may be unjeresti-

mated; in several towns known to the writer the population given is far below the truth. Thus, the population of Glen Ridge, New Jersey, is given as one hundred, whereas this town wedged in between Montclair and Bloomfield has a far larger clientele to draw from.

The sixth state or territory in the list is Arkansas, with four hundred and seventy-one to each practitioner. Here again is a sparsely settled region, with a few well-known resorts, such as Hot Springs. I will refer to this resort later in the paper. The seventh is Vermont. I know no special reason why this state needs one doctor to four hundred and seventy-seven of its people, but the fact so remains. Missouri comes next with four hundred and eighty-three. This constitutes the states with a proportion of less than five hundred.

Now comes the states thick and fast, and their relation to the percentage probably contains no significance. Illinois is eleventh with five hundred and two, Tennessee twelfth with five hundred and five, Arizona thirteenth with five hundred and eleven, Oregon fourteenth, Massachusetts fifteenth, with Virginia sixteenth, Maryland seventeenth, Texas eighteenth, Maine nineteenth, and Michigan with percentages shown later in the table. New Hampshire is twenty-first, with five hundred and fifty-nine, Kansas twenty-second, with five hundred and sixty-five, New York twenty-third with five hundred and sixty-six, Pennsylvania twenty-fourth with five hundred and seventy-five. It is strange that the two largest states should stand next to each other in the percentages.

The twenty-fifth state is Kentucky, the twenty-sixth is Iowa, the twenty-seventh is Rhode Island, with five hundred and ninety-six. Then comes the six hundreds. This list comprises Connecticut, with six hundred and seven, Nebraska, with six hundred and eighteen, and Delaware, the thirtieth, with six hundred and ninety-one. The six hundred list further comprises New Mexico, with six hundred and ninety-five. The first seven hundred is Wyoming, with seven hundred and nineteen; then comes Washington and Utah, followed by Virginia, the thirty-fifth, with a comfortable margin of eight hundred and eight. New Jersey is also in this class and Louisiana and Wisconsin. North Dakota, Alabama, Idaho and Mississippi complete the eight hundred class, while Minnesota has one to nine hundred and twenty-four, and North Dakota nine hundred and eighty. North Carolina has one thousand and forty-five, South Carolina, one thousand and sixty-seven. This ends the list of states, for next comes Alaska, with one hundred to eleven hundred and six, while Hawaii offers each doctor fourteen hundred and fifty-two islanders. Porto Rico is also thoughtful in having forty-five hundred and forty to each doctor, while the Philippines would seem the doctors' paradise, with thirteen thousand two hundred and ten "little brown men" for each medicine man.

The figures show that the mere ratio is not important. Thus, probably the Colorado doctors do as well as any in the United States, yet the ratio is the lowest. Again, thirteen thousand Filipinos might not save an average Yankee doctor from starving. The real table would be the census of the sick people who could afford private practice. This table can never be obtained.

Far more interesting are the figures of the various

cities. Thus, of course, New York City has the largest number of doctors in one municipality, five thousand one hundred and sixty-seven to a population of 2,380,000. This makes a ratio of four hundred and sixty-one, lower than the state ratio, yet this is probably raised by the illnesses of the millions of visitors annually coming to the city, besides those who come for consultation or special treatment. Philadelphia has three thousand and forty-eight to 1,325,000 population, or one to four hundred and thirty-four, but the same remarks apply as to visitors and imported invalids. Chicago necessarily must be ahead, so it has four thousand and forty-four to 1,700,000, or one to four hundred and twenty.

Curiously enough, parasitic cities, if the term can be permitted, show a better average. By this term is meant towns that derive their importance or living from neighboring cities. Thus, Jersey City has a ratio of one doctor to nine hundred and seventy-six people, or twice New York's ratio. Brooklyn has a ratio of one to six hundred and eighty-one. Thus, Camden, opposite Philadelphia, has a similar ratio of six hundred and thirty-six.

So it is with Boston; it has the low average of one to three hundred and twenty-six, while Cambridge, across the Charles, has one to five hundred and ninety-two, and yet this one fact does not necessarily make Cambridge the more desirable place for a young physician to settle. It is known by this directory that the ratio in the cities is lower than in the rural districts, thus Philadelphia, Boston, New York and Chicago are all considerably below the average of their respective states. So it is elsewhere; thus Baltimore, which has grown to be a great medical center, has a ratio of one to four hundred and two, while the state of Maryland is considerably over a hundred above this average.

When the cities are more co-equal, the ratio remains about the same, thus Pittsburg has a ratio of one to four hundred and twenty-one, while Allegheny has a ratio of four hundred and eighty-five. Yet St. Paul, Minnesota, has an average of over six hundred, while Minneapolis has a ratio of two hundred less, or four hundred and seventeen. The writer is not familiar enough with local conditions to explain this difference, but would not class St. Paul with Camden, Jersey City, or Cambridge as to independence.

TABLE OF STATES AND TERRITORIES SHOWING THE RELATION BETWEEN POPULATION AND THE NUMBER OF PHYSICIANS.

	Population.	Physicians.	Ratio 1 to
Dist. of Columbia....	278,718	1,086	255
Colorado	539,700	1,670	323
California	1,485,053	4,369	340
Indian Territory	391,960	1,049	373
Oklahoma	398,331	1,003	397
Arkansas	1,310,564	2,780	471
Vermont	343,641	724	477
Missouri	3,106,665	6,439	481
Indiana	2,516,462	5,203	483
Ohio	4,157,545	8,582	486
Illinois	4,821,550	9,609	502
Tennessee	2,020,616	3,802	505
Arizona	122,212	339	511
Oregon	413,536	807	512
Massachusetts	2,805,346	5,434	514
West Virginia	958,800	1,845	519
Maryland	1,190,050	2,258	531
Texas	3,048,710	5,694	533
Maine	694,466	1,295	537
Michigan	2,530,016	4,651	544
New Hampshire	411,588	735	559
Kansas	1,544,968	2,732	565

New York	8,067,908	14,238	566
Pennsylvania	6,302,115	10,954	575
Kentucky	2,147,174	3,628	578
Iowa	2,231,853	3,835	582
Rhode Island	428,556	715	596
Connecticut	908,355	1,494	607
Florida	528,542	786	672
Delaware	184,735	267	691
New Mexico	195,310	281	695
Wyoming	101,816	147	719
Washington	874,310	1,158	755
Georgia	2,216,331	2,855	776
Utah	276,749	351	788
Virginia	1,854,184	2,293	808
New Jersey	2,144,143	2,634	814
Louisiana	1,381,625	1,664	820
Wisconsin	2,228,949	2,660	838
South Dakota	455,185	536	849
Alabama	1,828,697	2,261	852
Idaho	250,000	284	880
Mississippi	1,551,270	1,749	889
Minnesota	1,979,912	2,141	924
North Dakota	437,070	446	980
North Carolina	1,893,810	1,812	1,045
South Carolina	1,340,316	1,255	1,067
Alaska	63,592	57	1,106
Hawaii	154,000	106	1,452
Porto Rico	953,243	172	5,540
Philippines	7,635,426	578	13,210

Statistics may be misleading under certain circumstances, thus Glen Ridge, New Jersey, is given as having one hundred population, Montclair as having fourteen thousand and Bloomfield nine thousand nine hundred. Yet these three towns are practically one, merging into each other, and physicians in each place practice in all three.

Hot Springs, Arkansas, with a population of ten thousand people, has one hundred and fifty-four physicians, or one to sixty-four, which is remarkably low; yet this is due to the fact that it is a great health resort and the ten thousand population does not represent the people who are the patients. Again, Los Angeles, California, is another spot favored by invalids; it has six hundred and eighty-three physicians to one hundred and three thousand population, or an average of one to one hundred and fifty; laying aside the ratio at Hot Springs, this is probably the lowest in the United States. Smaller places in California also show lower ratios, such as Pasadena, has one to one hundred, but these places are too small for comparison.

Colorado Springs has fifty doctors to a population of twenty-two thousand, or one to four hundred and forty, quite a high ratio for such a famous health resort. Atlantic City, New Jersey, is wholly dependent on its visitors for its prosperity. It is credited with twenty-eight thousand population and ninety-three doctors, or one to three hundred, but this does not show the value of this resort as a place for physicians; probably not five per cent. of practise comes from this stationary twenty-eight thousand. Health resorts such as Atlantic City not only attract sick people, but they sicken well people through indiscretions. A man who at home is careful throws judgment to the wind when away from home. A prominent Atlantic City physician is on record as saying that the habit of eating clams and oysters in the summer time means an income of two thousand dollars a year to him regularly.

Take places widely separated, it is astonishing to find how closely the percentages run. This is true of places under widely different conditions. Thus Lynn, Massa-

chusetts, and St. Joseph, Missouri, with about the same population, have about the same ratio, one slightly above six hundred; also it is an index of the prosperity of a city to have many physicians. Thus Seattle, a bustling town, has one to three hundred and thirty-eight, Kansas City one to two hundred and thirteen, twice as many in proportion as New York, Philadelphia or Chicago. St. Louis has about the same ratio as the other larger cities, one to four hundred and forty.

This comparison could be kept up indefinitely, but enough has been shown to afford some interesting facts. It would seem that a low ratio of doctors to the population is a good sign for the physician; where the ratio is high, living is poor. In other words, doctors, as other business men, instinctively seek good localities and gather in groups. Again, the statistics show that at present there is no dearth of doctors. We can well put a check on the zeal of our medical schools. If no men were graduated for a few years, it would harm no one, for statistics show that even now, with four year courses and higher admission requirements, doctors are increasing faster than the population.

ON THE EXTERNAL USES OF METHYL PYROCATECHIN.

BY Q. W. HUNTER, M.D., LOUISVILLE, KENTUCKY.

METHYL pyrocatechin—C₇ H₈ O₂=C₆ H₃ (CH₃) (OH₂)—commercially known as guaiacol, is a syrup-like liquid (existing in wood-tar) produced by dry distillation of guaiaretic acid. It will be remembered that creosote is about seventy-five per cent. guaiacol, and that benzosol contains fifty per cent. of the same product.

As the superscription indicates, the scope of this paper is intended to include only the external employment of guaiacol, hence the various derivatives which have been extracted therefrom by chemical manipulation, the indications for internal administration, the physiological action when so used, etc., will not be discussed at length. However, the suggestions may be permitted that guaiacol is an exceedingly useful and valuable drug for internal administration; that both the carbonate and valerianate are oftentimes distinctly indicated in certain morbid systemic states; that certainly guaiacol carbonate is superior to creosote in many of the diseases for the relief of which the latter drug is commonly prescribed; and there appears little reason for recommending or prescribing benzosol (benzoyle-guaiacol, C₁₄ H₁₂ O₃) when the physiological effect of methyl pyrocatechin is desired. Moreover, so far as the writer is informed, there are few if any contraindications to the internal administration of guaiacol in any condition where its use seems advisable, which cannot be truthfully said of many other and more popular medicaments.

The first suggestion, or at least the first comprehensive description, of the *modus operandi* of employing methyl pyrocatechin externally as an antithermic, seems to have been from the pen of Guinard (*Bulletin Therap.*, 1893) who applied the drug to the chest of a patient suffering from phthisis. His experiments led to its trial in pneumonia, typhoid fever and other diseases.

In a lecture on the external application of guaiacol for reduction of high temperature in typhoid fever and other febrile diseases, DaCosta (*Medical News*, 1894) claimed the action of this drug was less prompt but more enduring in effect than that of the cold bath, and that it was to be preferred to the latter as a means of reducing high temperature in typhoid fever and other allied conditions under certain circumstances. The method of application suggested by Guinard and reiterated by DaCosta, et al., is exceedingly simple: The abdomen, iliac region, or even the thigh, having been adequately cleansed with soap and water, twenty to sixty drops of pure guaiacol are painted thereon with a camel's hair brush and slowly "rubbed in" with the hand for five or ten minutes, the space so treated being then covered with oiled silk or waxed paper to prevent evaporation. The sensation produced is not unlike that which follows the application of menthol to the skin. Reduction in temperature is prompt and persists for two to twelve hours, depending rather upon the intensity of the pyrexia present than amount of the drug employed. Guaiacol may be used *ad libitum*, but ordinarily not more than three applications within the twenty-four hours will be required to maintain the temperature at about normal. The quantity applied on each occasion will, of course, depend largely on circumstances—e. g., if the temperature ranges about 103 degrees F., twenty to thirty drops, or even less, may be sufficient. To disguise the objectionable odor of the guaiacol it is advisable to combine therewith a small quantity of oil of cloves, oil of bergamot, ordinary so-called "colonge," or oil of sassafras; none of these substances will interfere with action of the drug.

DaCosta (loc. cit.) thought guaiacol was absorbed by the skin, being thence carried by the circulation to the heat centers upon which it acted as an antithermic, and claimed it was not followed by depression, such as is not infrequently observed after internal administration of antipyrine, phenacetin, and other coal tar derivatives; moreover, that it produced less sweating, and there supervened no renal irritation or other unfavorable effect. The suggestions and experiments of Guinard and DaCosta induced numerous other observers to make use of guaiacol along similar lines, and in the main their results have been eminently satisfactory; thus the field of usefulness of this drug has gradually extended.

According to Anders (*Therapeutic Gazette*, 1895) the unquestioned value of guaiacol, in a wide range of therapeutics, has induced its adoption in many new directions on the strength of recommendations from good authorities; but as the product is not free from shortcomings, its application must be carefully studied. His conclusions are that: (1) Guaiacol is an efficient local sedative, as shown by its analgesic power when employed in painful affections. (2) It is more potent when administered hypodermatically than when applied to the skin surface. (3) It has not, in practically afebrile conditions, produced any noticeable lowering of the temperature or other unpleasant effect in his experience. (4) When employed in febrile affections it may cause objectionable effects, such as rigors, followed by high temperature. (5) Guaiacol seems to be powerless to control inflammatory processes, particularly when acute in character.

Cerezo (*British Medical Journal*, 1895) used guaiacol externally in a variety of conditions, including hyperpyrexia, typhoid fever, "fever of growth," with the effect of promptly reducing the temperature two or three degrees centigrade. In one case of typhoid fever rapid reduction of temperature was followed by alarming symptoms of collapse. In this instance one and one-half grammes of the medicament had been painted on the skin over the popliteal space and in front of the knee. His experience led him to conclude that guaiacol suspended in tincture of iodine may be advantageously applied externally to the thorax as a revulsive in chronic broncho-pneumonia, and as a means of promoting absorption of pleuritic effusions; for this purpose he used it in the proportion of three grammes to twenty grammes of tincture of iodine and the same quantity of glycerine, this being painted on the surface every day. In anasarca from anuria due to scarlatinal nephritis, the same mixture may be painted on the lumbar region. As a local anæsthetic guaiacol is less dangerous than cocaine; for this purpose it should be used dissolved in water in the proportion of twenty per cent., or suspended in sterilized olive oil (1 in 10 or 1 in 20); five to ten centigrams of either of these preparations may be injected under the skin or mucous membrane, the anæsthetic effect being produced in eight to ten minutes. Applied as an embrocation (1½ to 2 grammes of pure guaiacol) to the skin it is a useful antipyretic in tuberculosis, typhoid fever, etc. Collapse, however, must be guarded against, and the method is contraindicated where there exists cardiac weakness,* and in certain cases where there is an idiosyncrasy.

The local application of guaiacol for reduction of temperature (in typhoid fever) has proven so safe and effective in the hands of McCormick (*Therapeutic Gazette*, 1903) that, after having thus applied it nearly three thousand five hundred times, he says: "I can assure you, if properly used, it will give you the same gratifying results." At first he applied fifteen to twenty drops, but later experience proved that better results could be obtained by using a smaller quantity—viz., five or ten drops. During the last two years, says the author, nine drops was the largest amount applied at a time, and this only in a few instances, the average being six drops. In order to produce the desired effect care must be exercised in its application. The point selected for the purpose is usually the right iliac region, but the location is regarded as of no especial consequence. The space must be cleansed with soap and water and thoroughly dried; ether or alcohol is applied to remove oil from the skin; the guaiacol is slowly dropped on the surface and thoroughly rubbed in with the hand for ten to fifteen minutes; the part is then covered with oiled silk or waxed paper. The only preparation (guaiacol) that he found reliable was Merck's. Occasionally the drug produced local irritation, and when this occurs a new point must be selected for its application. The anti-pyretic effect of guaiacol lasts two to four hours, and the oftener it is applied the greater the effect.

When McCormick commenced the use of this drug to control fever, he found that a chill occasionally resulted from sudden reduction of temperature. If it

can be avoided the temperature should not be reduced more than three degrees, and this can easily be regulated after a few applications are made. He has seen quite a number of severe chills, yet no bad results followed; and the statement made by some authors that congestion of the internal organs follows this plan of treatment has not been borne out by his experience. He had a few cases of pneumonia as a complication in typhoid fever, but these could in no way be traced to use of the guaiacol. Some writers on therapeutics have contended that guaiacol is a depressant, and for this reason is a dangerous remedy in any disease where the circulation is likely to suffer from long-continued fever. The person who originated this statement, says McCormick, evidently based his assertion on some fine-spun theory, for if he had had much experience with the drug he would have known the fact to be otherwise; that he has used the remedy and observed its action so many times that he knows the opposite view to be true—i. e., that it does not weaken the pulse, that on the contrary the pulse grows stronger, fuller, and slower, and that a weak and rapid pulse is no contraindication to the use of guaiacol.

If the application of guaiacol does not make the desired impression on the temperature, it has been found that by giving a hypodermic injection of 1-100 grain nitro-glycerine just prior to such application the action of the drug is much more prompt and certain, a less amount being required than when nitro-glycerine is not used. Again, if it be found that guaiacol is reducing the temperature more than desired, or if a chill occurs, all this can be almost immediately controlled by hypodermic injection of 1-150 grain sulphate of atropine. Thus the action of guaiacol can be increased by giving nitro-glycerine before its application and its effect can be limited by stopping its further action with atropine.

"During the last two years I have been using guaiacol hypodermatically for the reduction of temperature, and am very much pleased with its action thus employed. It acts promptly and efficiently, producing no bad results. The amount usually given in this way was two minims; the greatest amount given at any one injection was four minims. The guaiacol was diluted with an equal amount of alcohol, and the injection was rather deep. No abscesses resulted from its use." (McCormick.)

Excellent results have been reported by Ridge (*Medicine*, 1903) in treatment of smallpox with guaiacol; It was used in forty-eight cases, thirteen of which were children; four children and one adult died, the latter being of intemperate habits. None of the patients who died had ever been vaccinated. Seven of the cases were of severe type. The effect of guaiacol was to lessen the secondary fever. In most instances it was dissolved in olive oil in proportion of 1 to 80, and the "whole surface of the patient was gone over every four hours." The applications were followed by prompt lessening of the irritation, and after a few repetitions the odor disappeared.

Stanley (*Australasian Medical Gazette*, 1899) writes concerning the reduction of high temperature by external application of guaiacol: His results were satisfactory, his trials thus far having been with small quantities (five drops) of the drug in young children suffering from broncho-pneumonia. The points in favor of the treatment are (1) speedy reduction of temperature, (2)

*Compare with statement of McCormick, which follows.—Q. W. H.

ease of administration, (3) absence of ill effects, both locally and generally.

Woodbury (*New York Medical Journal*, 1897) claims that guaiacol valerianate, after a slight sensation of heat, produces anæsthetic effects, slower in appearing than after application of cocaine, and not followed by secondary hyperæmia. The preparation has a strong odor of valerian, which almost masks that of the guaiacol, the combination producing an odor suggestive of walnut. It is a local anæsthetic to the skin when applied in full strength. In painful cutaneous affections, attended by hyperæmia, such as inflamed acne, abscess of the external auditory canal, etc., pure guaiacol valerianate applied externally relieves pain and checks pus formation. In chilblains it promptly relieves the symptoms. Small compresses placed over painful points in neuralgia afford almost immediate relief. In acute rhinitis, guaiacol valerianate should be diluted with three or more parts of oil of sweet almonds or liquid alboline; in this form it acts as a protective as well as an analgesic and antiseptic application. In chronic rhinitis, especially in the purulent form, as well as in some varieties of atrophic rhinitis, it may be used in full strength with advantage. In ulcerated conditions of supposed tuberculous origin, a few applications will relieve pain and promote the healing process.

Diamentberg (*Journal de Med.*, Paris, 1900) cites the case of a girl of fourteen admitted to Hospital de Rothschild in an alarming state of prostration, and who ultimately developed pulmonary gangrene. The temperature was 105 degrees F.; thirst extreme; pulse quick and irregular; frequent and incoercible vomiting; respiration dyspneic. There was abundant fetid expectoration which separated into three layers, the upper presenting a slight gray color, more or less mixed with air, the middle clear and serous, the lower composed of muco-pus with more or less solid matter. Subcrepitant and coarse rales were heard over the left apex. The method of treatment followed was that recommended by Weil, who reported seven cases of pulmonary gangrene with recovery treated by what he termed *injectiones guaiacoles intensives*. The patient was given daily a Pravaz syringeful of a solution prepared as follows:

R Crystalized guaiacol.....10 gms.
Oil of sweet almonds.....10 gms.
Hydrochlorate of cocaine.....0.20 centigm.

Each evening a small glass of milk, to which twenty drops of the guaiacol solution had been added, was given; each morning (alternating on the posterior and anterior surface of the chest) a bandage ten by twelve centimeters saturated with the solution was applied, covered with gauze and oiled silk and held in place by a light binder. Vomiting ceased in twenty-four hours; in four days fever had been dissipated; the characteristic fetid sputum had diminished to about one-fifth in six days, and there was marked improvement in the focal signs. Treatment was continued for three weeks without appreciable reaction to the drug, and from that day on the quantity administered was lessened. At the end of two months, when treatment was finally suspended, the patient was practically well, had improved in flesh and strength, there was no expectoration, and no physical signs of intra-pulmonary disease.

Ragazzi (*British Medical Journal*, 1903) speaks favorably of guaiacol ointment in the treatment of paro-

titis, having employed it in twenty such cases. The preparation used contained one part of guaiacol to ten parts each of vaseline and lanolin. This was smeared on the parts twice a day and covered with oiled silk. After the first dressing pain diminished and totally disappeared on the second or third day; fever also decreased. The drug, moreover, seemed to have a certain amount of resolvent action. It has also been used with considerable success in orchitis, whether simple or secondary to parotitis. The guaiacol is absorbed, as it has been detected in the saliva fifteen to thirty minutes after external application. The author thinks its beneficent action is possibly due to the neutralizing power which it possesses on toxins circulating in the blood.

Lenz (*Weiner Klin. Rund.*, 1898) gives results of his treatment in fifty cases of gonorrheal epididymitis by external application of guaiacol. He claims that local use of a ten per cent. ointment with vaseline is the best treatment for this condition, that it is analgesic and antipyretic and is applicable in acute suppurative as well as traumatic cases. In subacute cases it is less valuable, and is of little use in promoting absorption after acute symptoms have subsided. The method of administration is free from danger and always followed by prompt lessening of subjective symptoms.

In treating epididymitis Perry (*Medical Record*, 1899) applies one c. c. of pure guaiacol over the cord of the affected side as it lies in the inguinal canal, and paints the scrotum over the inflamed epididymis with two c. c. of a mixture containing one part guaiacol and two of glycerine. This produces but slight burning, and while some desquamation of the skin of the scrotum occurs, it seldom causes serious discomfort. Two applications are made daily, one in the morning, the other in the evening; but if the attack is severe, a third is used on the first day of the treatment. Of twenty cases so treated by Perry one was aborted, four were cured in three days, four in four days, three in five days, five in six days, and three in seven days.

Appleby (*Boston Medical and Surgical Journal*, 1897) claims that when guaiacol is poured upon the abdomen it is rapidly absorbed, that its physiological effect is to cause rapid and marked lessening of blood pressure, lowering of temperature, and free diaphoresis. These physiological effects first led him to use it in a case of nephritis attended with slight convulsions, and a full, hard pulse. Twenty-five drops were poured upon the abdomen and rubbed in with the fingers. Relief was marked. The author next used guaiacol locally in two cases of puerperal eclampsia, with surprising and happy results. They were both primiparæ. In the first, labor was progressing favorably; dilatation had been accomplished and the occiput had begun to descend when convulsions supervened and became more profound with each recurring seizure. As soon as practicable chloroform was administered and the child (a large male) was instrumentally delivered. When effect of the anæsthetic had worn off, convulsions returned, whereupon forty or fifty drops of guaiacol were poured upon the abdomen and gently rubbed in. Within a few minutes the pulse became soft, there was free diaphoresis and convulsions ceased. The second patient had been attended by a midwife. Shortly after the placenta had been delivered, convulsions developed. The woman was markedly edematous over the entire

body, the pulse was full, hard and tumultuous, and powerful convulsions were almost continuous. Altogether it looked like a hopeless case. About fifty drops of guaiacol were rubbed on the abdomen, and one-fourth grain sulphate of morphia given hypodermatically. In less than an hour the patient was sleeping quietly, and no more convulsions followed. The author adds that "both these patients had albuminuria and were much swollen, which symptoms demanded treatment for a few days, but both made good recoveries." He claims for guaiacol certainty of action, speedy relief of urgent symptoms and ease of application, which render it perhaps more desirable and less objectionable than any of the remedies heretofore used in eclampsia.

Guaiacol as an antithermic has been employed by many other observers, in accordance with the suggestions of Guinard and DaCosta, in typhoid fever, pneumonia, tuberculosis, appendicitis, etc., etc.

In the majority of instances favorable results have been recorded, there having occurred no immediate or subsequent deleterious effects which could reasonably be attributed to the drug; therefore its external application as an antipyretic may be regarded as safe and satisfactory.

If desired guaiacol may be used hypodermatically, as suggested by Anders (loc. cit.), with the expectation of securing prompt and efficient action; but this method is not recommended for general application because of possible contraindications and obvious limitations.

In affections of purely inflammatory character the drug is of doubtful practical utility, but may be indicated and advantageously employed in connection with other appropriate treatment.

ALCOHOLISM: THERAPEUTICS.

BY W. C. ABBOTT, M.D., CHICAGO, ILL.

A GRAIN of emetine, dry, at bedtime, so taken as to be retained, best quells alcoholic craving, insomnia and incipient delirium tremens; by hepatic elimination.

The emetine must be swallowed dry, in tablets, the patient in bed ready to sleep and lying absolutely quiet for 30 minutes after taking it.

Incessant craving for alcohol may be quelled by a full dose of capsicin, about gr. 1/12 to 1/3 in half to an ounce of strong liquor.

To make alcohol idea unpleasant give glonoin and atropine to flush face and make head feel full; gr. 1/250 every 30 minutes till face is red.

The first object of treatment is neither support nor sleep, but toxin elimination, repeated and persistent; delirium tremens is acute toxemia.

Insomnia after removal of alcohol is nicely relieved by solanine gr. 1/12 every hour for three to six doses, or more if needed.

The gastrointestinal relaxation following a cure is well relieved by berberine, a grain a day, well divided, for six weeks.

The nerveless state after stopping an old habit is remedied by strychnine, which may require huge doses or be tolerated only in very small ones.

Old alcoholics may only be kept in comfort by forming the strychnine habit, which is preferable in every way.

From strychnine the habitue may descend to brucine, and from this to populin, always taking just enough to

brace him and no more.

The morning catarrh of drunkards subsides under any sulphocarbolate in "dose-enough," and copper arsenite gr. 1/1000 every half hour.

If a man simply will not stop alcohol give him apomorphine hypo. gr. 1/10, and simultaneously a good big drink of pure whisky.

Arbutin, 1 to 5 grains a day, soothes all irritated mucous membranes, especially the genitourinary tract, 6 months or more.

Dilatation of the stomach requires cure of the catarrh, and a month of berberine gr. 1 to 3 a day, to contract tissues.

Collinsonin is valuable to induce healthy conditions along the urinary tract; a grain or two daily for a month.

Cornin specially restores tone and vigor to the reproductive apparatus; always a powerful encouragement to perseverance.

Euonymin, iridin leptandrin, useful cholagoges for use during and after convalescence; a small dose of either at bedtime.

Helenin is an efficient "vitalizer" of the catarrhal relaxed mucosa; give one to five granules before each meal and at bedtime.

Sometimes that curious alkaloid avenine, gr. 1/12 at bedtime in a glass of hot water, affords refreshing sleep otherwise impossible.

Helonin is the best remedy to control the dysmenorrhea, so often the cause of alcoholism in women; give enough.

Whenever alcoholic stools foretell a coming spree, give podophyllotoxin gr. 1/12 at bedtime until the stools are natural. Most important.

The enfeebled nerves, tremulous, or choreic, may be soothed by macrotin, a grain every 1 to 4 hours.

The reconstructive values of nuclein and neurolecithin should never be neglected. They help to make cures permanent.

When the pulse tension is below par, with restless insomnia, give a hypo. of physostigmine gr. 1/100 not more than twice a day.

When with restless insomnia the pulse tension is high, inject by hypo pilocarpine gr. 1/6, repeated as necessary to full effect.

In either sex the reproductive organs may be strengthened by senecin; give up to any dose that may be needed.

For dementia, wet brain, etc., besides foregoing measures give zinc phosphide gr. 1/6 before meals and at bedtime, 1 week of each month.

The awful breath of the drunkard is evidence of auto-intoxication; clean out, clean up and keep clean.

After escaping the perils of opium, the hypnotics, "supports," and many "specifics," elimination now cures the alcoholic.

The uncontrollable craving for alcohol may be simply the burning from chronic pharyngitis, relieved by cocaine, cured by treatment.

Search for causes may carry one into a study of the family and business relations, and require the most delicate handling.

Women are hard to cure unless a master emotion can be brought to dominate the patient constantly.

If restricted to a single drug in this disease our choice would be unhesitatingly made—pure emetine, freed from cephaline.

The Early Diagnosis of Gastric Cancer is the subject of an important editorial in *The Therapeutic Gazette* (Jan., '07). It seems that surgery may now give a favorable prognosis in these cases, provided a radical operation be done immediately upon an early diagnosis. Unfortunately, however, the clinical, chemical and bacteriological means at our command have not thus far sufficed to detect symptoms at that stage of the development of the lesion when operation can accomplish so much. Patients thus afflicted are usually sent to the surgeon exhibiting great emaciation, profound blood deterioration, palpable tumor and long standing pyloric obstruction—when treatment as a rule can be merely palliative. The Mayos have demonstrated that the starting point of gastric carcinoma is usually an ulcer; this is probably true in 90 per cent. of the cases.

Among early symptoms Moullin lays some stress on distaste for food and pain, especially in a person middle aged, who had previously enjoyed good digestion, and in whom these symptoms do not disappear under appropriate treatment within a fortnight. Of the various methods of converting suspicion into certainty, there are only two—and only one upon which much reliance can be placed. The first is concerned with a more exact knowledge of the working power of the stomach than can be obtained by inquiring into the patient's sensations; the second is by direct palpation through an incision.

Leucocytosis estimation during the process of digestion, gastric trans-illumination, the testing of the absorptive power by means of some such substance as the iodide of potassium (which should, within a few minutes, make its appearance in the excreta), radiography after ingestion of bismuth or some other opaque substance (whether free or enclosed in an albuminous capsule which should dissolve in a certain time), and other methods which have been tried from time to time, give unreliable results and are troublesome to apply. The test meal, preferably salted oatmeal soup, administered after some hours of fasting and gastric lavage is siphoned in an hour and examined. If free hydrochloric acid is then found, or lactic acid and the Oppler-Boas bacillus are present exploration is imperatively indicated, though these chemical findings are possible in the presence of other disorders, such as simple dilatation, chronic gastritis and atrophy of the stomach wall. Unfortunately negative evidence is of no value, since even in the presence of cancer hydrochloric acid may be secreted in almost normal quantity and lactic acid may be entirely absent. Thus these findings are of service only when they are positive. Moullin protests against what he calls a roving commission inside the abdomen; however, when there is definite evidence that one particular organ is not doing its work as it should do, when no reason can be found why it does not, when the patient's health is clearly beginning to suffer, he holds that exploration is no longer a roving commission. The operation, though a major one, is in itself quite innocuous. Hemmeter declares that the simple continuance of a chronic gastritis, or nervous dyspepsia, in spite of logical and scientific treatment, accompanied with progressive loss of body weight during three or four weeks, justifies the suspicion of latent gastric carcinoma.

"If you suspect the existence of cancer you must not wait," declares Moullin; and no physician should renounce this advice.

Vasculodepressor drugs are considered by Saundby (*Brit. Med. Jour.*, Oct. 20, '06), who notes the general knowledge and employment of heart tonics; there is not, however, sufficient use made of the vascular depressants, which are of great utility in such advanced cases of heart disease as are "no longer able to answer to the whip." These depressants act by relaxing the peripheral arterioles; and by lowering the blood-pressure they lighten the burden the heart has to bear. Among them is ethyl nitrite, which is contained in sweet spirits of nitre, but is unstable and unsatisfactory. Amyl nitrate is useful, but has obvious disadvantages in some cases; glonoin, the one per cent. solution of nitroglycerin, is active, safe, easy to administer and can be dosed to the requirements of each patient; sodium nitrite has not given Saundby good results. All these drugs are transient in their effects; they are really more valuable for removing pain than for giving permanent relief. Nitroglycerin is valuable in advanced cases accompanied by oppression or pain suggestive of angina pectoris. The patient should carry about with him a small bottle containing one or two minims to the teaspoonful, to be taken when the distress comes on. This solution is preferable to tablets. Saundby now employs erythrol tetranitrite to produce a permanent unloading of the weight on the heart; a single dose will for four hours lower the pulse tension—an observation of Bradbury which can be demonstrated by sphygmographic tracings made before and after administering the drug. One-half grain in a tablet is administered every four hours while the patient is awake; it may occasionally cause headache, but very rarely so severe that the drug need be discontinued. It may be alternated with Nativelle's digitaline, giving the drugs with four hours interval between the doses of each. The value of mercury seems to be limited to its power to get rid of those alimentary poisons which set up vasomotor spasm. Dieulafoy treats chronic disease of the heart and great arteries by hypodermics of a solution of mercury biniodide; Saundby has seen no good results from this method, while the injections occasion much local pain and frequently supuration. Baillie's pill (digitalis, squill and blue mass) possesses a deservedly well-founded reputation in dropsy; but its effects are probably not attributable to the action of the mercury it contains on the vascular system. Iodide of potash is frequently combined with other cardiac remedies, less often by itself; its utility is certainly not limited to cases of supposed syphilitic aortitis, but depends on its action as a vascular depressant. Saundby has not found belladonna very effective in heart disease; plasters containing this medicament apparently relieve some kinds of heart pain, "but they are dirty, unpleasant things, which interfere with auscultation and are only fit for out patients." (How delightfully British is this sentiment.) Bleeding from the arm and leeching the precordia are means indicated in marked right heart engorgement; this procedure will most speedily relieve the heart, but it cannot be repeated except at comparatively long intervals. The results are striking and death has often been postponed by timely bloodletting; under such circumstances, however, the conditions are generally unfavorable to complete recovery. (We heartily endorse Saundby's views concerning venesection, as may be seen in our recent editorial on that subject.)

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THE SINGLE EXAMINING BOARD—A WORD TO OUR OPPONENTS.

WE need not rehearse the history of the licensure in medicine in New York. Suffice it to say that after nearly twenty years of experience with the makeshift of a triple board, the regents of the University of the State of New York (which, by the way, is no more a university than it is an orphan asylum, and which ought to be called the Educational Department or some other name that would tell what it is, without mental reservation or explanation), are trying to secure legislation establishing a single examining board so that the issuance of a license will be without sectarian designation, expressed or implied.

The opposition to this bill comes partly from osteopaths, Christian Scientists and other curious and recent sects of medical art or dogma, but very largely from the organized and officially recognized forces of Homœopathy and Eclecticism.

To the first set of opponents we have not a word to say. Their interests are clearly dependent upon a multiple examining board and system of medical recognition. The existence of several legally recognized kinds of physicians, logically implies that others may be recognized as circumstances may demand.

To the homœopaths and eclectics we wish to address some very plain and candid remarks. First of all, we do not believe that there is any conscientious physician, whatever his personal opinions or methods, who has not, deep in his heart, the ideal of professional unity, in scientific and practical matters. The old, unspecified or, if you please, mis-called allopathic profession, has not abandoned its dislikes of sectarianism nor its dream of a thoroughly united profession. It does not expect identity of individual opinions, although, in important points of difference, it naturally expects that scientific research and careful observation of empiric facts will ultimately bring agreement. With abso-

lutely no fixed creed as to medical practice and in the absence of certain analogues in religious organization, the old-school doctor cannot easily comprehend the desire on the part of others to establish separate sects. His mental attitude toward sectarians is somewhat that of the good Catholic toward Protestants, but with these differences: 1. While the Protestant may disclaim the Divine ordination of the Catholic Church, there is no similar claim made for the old medical profession; it is simply a profession and without any establishment of a particular nature. Like Topsy, it was not born, but has merely grown. 2. There is no possible ritualistic controversy; and (3) there is no dogmatic obstacle, except the purely negative one, that a member of the unspecified profession cannot proclaim any peculiar dogmas, except as a personal belief of himself or of some one whom he admires.

Thus, it would be insincere to claim that the unspecified medical profession views with entire equanimity the existence of any special kind of doctor. Indeed, it holds, more or less explicitly, that it is just as absurd to recognize doctors of allopathic, homœopathic and eclectic and other kinds, as it would be to have the legal profession similarly split up.

On the other hand, the support of the regents' bill for a single medical examining board, does not in any way depend upon the desire to coerce into allegiance such physicians as may choose to be independent. It should be clearly understood that, in abrogating the power of medical control formerly held by the county societies, and in making the examination for license the sole criterion, the rights of independent practitioners of medicine have been fully guaranteed by the old "school" in New York. It should also be clearly understood that the new regents' bill, by doing away with questions bearing directly on methods of therapeutics, permanently guarantees the right of the individual to hold and execute such therapeutic opinions as he may decide to be correct, without reference to authority of any kind.

It should not be overlooked that the unspecified profession recognizes a decided difference between homœopathy and eclecticism, as established in New York. The former typifies a subdivision of the profession which wishes, not only the privilege of holding peculiar views on medical science—every physician has this right, without any special legislation of affiliation—but of making those views more or less conspicuous and of becoming enthusiastic about them. The latter, to speak plainly—and physicians are given to looking behind the surface of things and to calling things by their right names—does not seem, in New York, to represent a medical sect in any true sense of the word, but rather business as opposed to professional methods of conducting practice.

Now, it is true that the unspecified profession of medicine deplores the fact that physicians should be formally associated because they believe in small or in large doses, because they believe in operative or medicinal treatment or because they hold any other opinions bearing on medical science and art. Still more deeply does this unspecified profession deplore the fact that a sectarian name is assumed to cover the desire to employ the newspapers, sign boards and other media of publicity to attract practice.

But, in granting to a definitely organized State examining board the right of licensure, the people of the State have taken it out of the hands of the medical profession, or of any part of it, to apply their prejudices, however sincere or even right in theory, to restrict the practice of medicine in accordance with scientific or ethical ideals. This fact has been clearly comprehended by the unspecified medical profession in the past and is so understood in its support of the present regents' bill.

Now, if the unspecified profession, which represents not a mere majority of the entire profession, but something like 90 per cent. of it, is willing to abrogate all control over the opinions and ethical practices of physicians, it would seem that the two schools which represent the remaining 10 per cent. should be willing to relinquish the theoretic advantages of a formal state recognition on examining boards.

At any rate, it should be clearly recognized that it is not a theory but a condition that confronts the entire medical profession of the State. Whether we believe in being just plain doctors or some particular kind of doctors, whether we believe in letting patients seek us or in getting trade as the merchant or butcher does, by advertising, it is sound sense to insist that future physicians shall be required to have a good general education, and to be well grounded in the general principles of medical science. One prominent homœopath admitted to the writer that he supposed his school would ultimately have to abandon its opposition to the bill, but not yet. We would warn the homœopaths and eclectics that there is no leisure for this sort of diplomacy. The osteopath bill has come perilously near passage and the Christian Scientists have usurped a good deal of the old lay following of the early sectarians.

If the State recognizes three kinds of doctors, and makes special provision, without reference to numbers involved, for two sects in addition to the unspecified profession, every principle of law and equity demands that other sects shall be similarly recognized and treated and the result will be virtually a return to the old unsystematic condition when every one could be a physician.

A GREAT RUSSIAN CHEMIST.

ONE of our foremost men of science was Dmitri Inanovitch Mendeleeff, who died recently in St. Petersburg; he was perhaps the last of the great men who established modern theoretical chemistry—the science as it was up to the advent of the Curies.

A real Russian, as thoroughly slavish as his name, one of a family of sixteen, he was born in a region where the population is only three to the square mile and where only one man in ten owns a reindeer, states the *Boston Transcript*. Nevertheless he became professor in the university which gave him his degree. Something of a traveler, he delivered a Faraday lecture in London, was a Davy and a Copley medallist, was a member of most of the learned bodies of Europe, was universally esteemed as the father of "an era in chemical science"; and in his 71st year, after having completed fifty years of public work, the entire scientific world united in his honor and St. Petersburg made public celebration.

Mendeleeff gave nearly the entire work of his lifetime to the theory of solutions, one of the most vital problems within the whole range of chemistry. His chief fame rests upon his "Periodic Table of the Chemical Elements." He seemed, to begin with, to have grasped the crude theory of Newlands, a Londoner, who called it the "Law of Octaves." Here, as with most important discoveries, the thing was "in the air" at the time; at least two other men, a German and an American, were working toward the same idea. Mendeleeff, however, was the first to put the theory upon a firm foundation, to work out its details and to answer effectively criticisms of it. As it now stands, one starts with a highly alkaline element, as sodium or potassium. As we go up the series of atomic weights the alkalinity falls off. The third, fourth and fifth are weakly alkaline, weakly acid or indifferent. The sixth and seventh are strongly acid, as oxygen, sulphur or fluorine, whose acid will etch glass. Then comes one of the inert gases, which do not combine with anything; and after that the series starts again with strong and acid qualities.

Mendeleeff, in his old age, ventured upon another great generalization. There is an unknown element in the sun's corona, which has never been found on earth (this was equally true of helium up to 1895). When "coronium" is found, so Mendeleeff believed, it will turn out to be another of the inert gases nearly related to helium and about one-fifth the weight of hydrogen. There is, moreover, at least one more gas of this group, a *million times* lighter than hydrogen, which is, such was Mendeleeff's belief, none other than the ether which pervades all space and has been assumed to be without weight.

THE THERAPEUTIC VALUE OF FRESH AIR.

THOSE of us in middle life will easily remember how all consumptives were kept in a hot-house atmosphere, constantly re-breathing their own poisonous exhalations, and jealously guarded against exposure to pure, fresh air. 'Tis a far cry from this method of treatment to that which is now applied with results decidedly brilliant, not only against consumptives, but a variety of other diseases as well. Some papers recently read before the New York Academy of Medicine are very illuminative in this regard. On the roof of the Presbyterian Hospital a steel structure has been placed, the flooring being of boards upon a layer of cement or concrete. Here Dr. W. P. Northrup, who has for years been advocating the open air treatment of pneumonia, has achieved an unusual percentage of cures.

Some recoveries were laid by Dr. Wm. S. Stone to the credit of the open air treatment of child-bed fever in the New York Lying-in Hospital; and these in cases when "even the most sanguine observer would ordinarily express a hopeless prognosis." His cases of puerperal septicaemia were treated in a glass-covered solarium. The patients themselves found the conditions "surprisingly satisfactory." The restlessness and delirium were less frequent and less marked; the duration of the fever seemed shortened, and to be better borne, as evidenced by the pulse and temperature; pneumonia appeared less commonly and, when it supervened, was more transitory, and there was a great difference in the strength and the general appearance of the patients.

Dr. W. G. Thompson, in a lucid paper,* emphasized the value of fresh air treatment in cerebro-spinal meningitis, chronic sepsis, all forms of anæmia, typhoid and typhus fever, erysipelas and, indeed, many other diseases; and he made most pregnant observations concerning the ventilation of hospitals, emphasizing that air temperature and air ventilation are not synonymous terms. An air may be really unbreathable, though its temperature may be low.

The open air treatment of the tuberculous insane has proved most successful at the Manhattan State Hospital, as the superintendent, Dr. Wm. Mabon, has found. Here is certainly a most grateful change from the condition "scarcely more than a score of years ago, when our asylums were still prison-like structures, gloomy without and gloomy within." Besides the tuberculous insane, Dr. Mabon has found the open air treatment to benefit also the feeble and untidy, the retarded convalescent, and the acute insane in whom the psychosis was associated with anæmic blood states, delirium, and loss of sleep.

* Fresh Air Treatment in Hospital Wards; *N. Y. Med. Rec.*, Feb. 9, '07, p. 213.

D. D. Bovaird, Jr., considers that the air should be not only fresh but, when possible, cold as well. If poor, wasted, anæmic children suffering from ileocolitis can be tided over into the cool of October, good recovery, with restoration of appetite, digestion and strength is almost certain.

We would add to the diseases here enumerated, measles, scarlet fever, bronchopneumonia and, of course, joint, bone and gland tuberculosis in children; and would conclude with Mr. Dooley's observation, expressed in terms exquisitely Deverysque: "If the doctors would open fewer bellies and more windows there mightn't be so many Christian Scientists."

PURE MILK FOR CITIES.

THE purity of the milk supply of New York City is now being questioned. The recent discussion regarding it has been quite exhaustive; and one may glean from the many observations made some very important conclusions, not only with regard to the metropolis, but all other American cities as well. A letter contributed by Dr. Ernest Lederle, a former Health Commissioner of New York City, to the *Evening Post* (Feb. 12, 1907) appears to us especially pregnant with sane suggestions.

At least five states—New York, New Jersey, Pennsylvania, Connecticut and Massachusetts—send milk to this city, in some instances from a distance of four hundred miles. It is impossible that the fourteen inspectors sent into the rural districts by the municipal Health Department can scrutinize all the sources of our milk supply; nevertheless the milk which we consume has probably never been better; nor is there any occasion for alarm or for immediate drastic changes. This is mainly due, Dr. Lederle points out, to the growing demand of the public for a higher standard in all foodstuffs, and to our realization not only of the value of milk as a food, but also of the danger when it is produced or transferred under unsanitary conditions. Our increased knowledge of the spread of such infections as typhoid and scarlet fevers, and perhaps diphtheria by means of an infected milk, and the demand for a "clean milk" (low in bacteria) as an absolute necessity for successful infant feeding, have necessitated the production of such an article.

The Health Department has done much to improve our milk. Various charitable societies and other private agencies have also been very active. Nor, contrary to an opinion much expressed, has there been lacking a great deal of effective cooperation on the part of the large milk dealers with the authorities; and these dealers have independently done a great deal of scientific work tending to a good product. And we doubt not there is practically no small dealer who would not if he

had the means to do so, fall in line with these wholesome activities; when they do not it is not, in our opinion, because they are vicious, but because wretched and unfair economic conditions tie their hands.

A difficulty in the situation is that the dealer is not usually the producer; the farmer can only exercise proper supervision over his commodity through aid of the sanitary authorities, local or State. Some of the large dealers, realizing that control of the conditions existing on individual farms was outside their jurisdiction, several years ago established at their own great expense "pasteurizing plants," where the mixed milk was subjected to a heating process. By this means a marked reduction of bacteria certainly was effected; and the losses from "sour milk" in the retail stores have been very much reduced. The difficulty with many of these plants has been, however, that the pasteurization has not been sufficiently thorough and prolonged. In some instances the milk has been heated for some twenty seconds; whereas effective pasteurization requires heating at 165° F. for thirty minutes. Milk should not be "sterilized" or cooked, because the taste of boiled milk is liable to objection and because of its decreased digestibility in infant feeding. Pasteurization, however, induces no material change in flavor or digestibility. A disadvantage lies in that such milk is likely not to show a cream line; and the New York public demands this especially in its bottled milk, although the cream is all in the milk as before undergoing this process. Wherefore, "commercial pasteurization," as we have indicated it, has been substituted for the really efficient method, since the former does not destroy the cream line. The point Dr. Lederle wisely makes here is that the Department should define "pasteurization" in its regulations, as is done by the Federal Government in the case of the Pure Food law.

To remedy such untoward conditions in our milk supply as undoubtedly exist Dr. Lederle advises: That there should be a comprehensive and adequate supervision of the dairies where the milk is originally produced. That until such a system of thorough inspection is being instituted and perfected effective pasteurization is essential, especially by reason of the tuberculosis which in more or less degree affects from 25 to 40 per cent. of our milch cows. The authorities, preferably of the State, should provide a comprehensive plan for the eradication of this disease in cattle, both in the interests of the public health and the prosperity of the dairyman. Meanwhile, and pending the carrying out of these plans, Dr. Lederle bids us realize that the cost of milk production will be materially increased.

It has been maintained that the authorities should insure a pure milk supply just as they should insure pure water to the community. It was also declared that a pure milk is always better than a purified milk; the lat-

ter—sterilized, boiled or pasteurized, as it may be—has been called "embalmed milk," which ugly name is deserves to some extent. Nevertheless, if the purity of any given milk is suspected, and if it must be used, it should unquestionably be pasteurized for thirty minutes at a temperature of 165° F. And this can easily be made a routine domestic procedure.

BROMIDES AND SULPHITES.

A BALD and rather irascible gentleman, having had his hat blown far beyond redemption, stepped into a shop to buy another. "Ah, you wish to buy a new hat?" asked the shopkeeper, obsequiously rubbing his hands together. "Oh, dear, no," returned the purchaser, with fine scorn, "I have come in to buy a postage stamp to paste on the top of my head." In this incident are well represented the two opposing types—the bromides and the sulphites. What is a bromide? It is an individual whose remarks are depressingly inevitable. Such an one thinks by syndicate. The joke about him is that he imagines himself to be clever—that his observations are always fresh, new and apt. Mr. Gelett Burgess, in his monumental work, "Are You a Bromide?" supplies us with a number of "Bromidians" by which this type may be recognized, as: "If you saw that sunset painted in a picture you'd never believe it would be possible." "I never read serials." "Of course, if you happen to want a policeman, there's never one within miles of you." "I don't care for money—only what I can do with it." "The Japanese are such an interesting little people." "It isn't so much the heat (or the cold) as the humidity in the air." "I don't know much about art, but I know what I like." These examples might be multiplied by thousands; every hour in the day one comes upon them.

What, on the other hand, is a sulphite? Such an one is really spontaneous and original in his utterances. All geniuses, all good poets and writers, are sulphitic; as are also most cranks and reformers. The insane asylums, we are told, are full of sulphites. In literature, for instance, such a man as Kipling will cudgel his brains for "muzzy" to describe a Scotchman. But the Bromide will stick to "fuddled," with "canny" in reserve; he will content himself with saying the obvious things, leaving the worry of finding the "necessary word" to those who write for a living.

On the whole the Bromides are vastly in the majority, as witness one of their pet observations: "Majorities rule; whatever the great body of people decides is right, is right." The Sulphites, on the other hand, are not a particularly comfortable folk; and this explains why they are in a minority which has been computed as one in ten. Their originality is irritating and

disturbing of commonplace ease. This is quite in accord with the observation, "The world wants mediocrity," which was made not long ago by a very great but a most bitterly disappointed man. Nevertheless, were it not for the Sulphites, the race would to-day hardly be distinguished from the simian type.

CHURCH CLINICS.

THERE is a church clinic in Boston—that most congenial nutrient medium for peculiar movements, which seems to be going Christian Science one better. The former institution, however, certainly has some noteworthy features, and such as are deserving respectful consideration. Its rector was before beginning his ministry, a college professor of psychology and of the history of philosophy. He therefore entered upon his clinical work peculiarly well grounded in a knowledge of consciousness (for that is what psychology is—the study of consciousness); and of such philosophy as concerns itself with the interrelation of mind and body. These clinics are notable both by reason of their projector's obvious sanity and absolute sincerity of purpose, wherein they are as wide apart as are the magnetic poles from all the alleged faith and mind cures, spiritual healings and the multitudinous quackeries so rampant nowadays—and nowhere else so numerous, so thriving and so remunerative as in Boston. Never in the history of mankind, probably, have these therapeutic fooleries been so rampant as they are among our people to-day.

Absolutely unlike such "workers," however, this rector and his reverend associate make no claim to perform miracles. They ask no price for what they can do. They have called to their aid eminent Boston physicians especially skilled in nervous diseases, who make preliminary examinations and thus exclude all having, as the fundamental causes of their suffering, anatomical organic affections or such surgical lesions as require operations. Thus scientific diagnoses are made before psychotherapy is attempted—in the form of "suggestion," the method now approved by enlightened medical practice.

All this argues a temperate and wholesome desire on the part of devoted clergymen, to meet the altruistic and humanitarian obligations which their Master put upon His disciples. It may indeed be wondered if such is really a church's *raison d'être*; if this work were not best relegated to the physicians' consultation room where in point of fact, the vast majority of these patients are made well quietly and "unbeknownst" to the community at large. And it might be noted further that a considerable number of such sufferers who seek the advice of physicians are either clergymen or divinity students;

nor are there any such patients, in the present day condition of things theological, who are more in need of a rational psychotherapy.

The French Lunacy Laws have long permitted the occurrence of frequent and terrible abuses and have offered every facility for the imprisonment of sane persons. The Chamber "has considered the subject for a number of years, and a bill has been prepared which will soon become law and which is expected to end for the future all such scandals," declares the *Evening Post*. The framers of this law have wisely profited by the scientific researches of modern alienists. It will no longer be possible in France to shut up any one not absolutely insane, or to keep the patient in confinement after complete cure. Sequestration by families will likewise be the object of State inspection. The asylums will be completely reorganized; instead of being prisons, as heretofore, they will be, as it were, hygienic villages, whose inhabitants will not be guarded by callous officials, but by specialists aiming to effect a cure. The discoveries of modern criminologists will be embodied in practical form by means of the enactment of this law, which will also remove from the jurisdiction of the courts that large class of so-called criminals who are in reality irresponsible and whose place is in the hospital rather than in prison. The law also defines the entire position of the lunatic as regards his material interests. It will not hereafter be possible for a man's next of kin to obtain his detention in order to control his share of the family inheritance. Guardians of the alleged lunatic's civil rights will be appointed, and his material as well as his moral interests will be looked after by the State.

Mountain Sickness... M. E. Thomas (*Bull. gen de therapeut.*, Nov. 8, '06), considers the effects of high altitudes and the precautions to be observed by mountain climbers. He is himself a member of the Alpine Club, and has made a number of ascensions. There are a number of conflicting opinions concerning mountain sickness. Has altitude itself really a specific effect upon the system? Gussfeldt relates that in his Andean ascensions he began to experience dyspnoea at 6,000 metres; before he reached 6,500 metres he had some muscular pains, but neither epistaxis nor headache. Thomas has also had such dyspnoea, but that was at the summit of the Rigi, after having made the railway ascension. Undoubtedly the rapid diminution of atmospheric pressure may induce difficult breathing; but such a change takes place only under special conditions. Travelers often arrive at the summit of Mont Blanc very much out of breath; but they breathe quietly and without distress a few moments later. At this altitude a liter of air contains but 55 per cent. of its normal constituents as they exist at sea-level. Often one is relieved of all distress by breathing somewhat deeply. Thomas was first greatly distressed at the summit of the Michabelles (4,500 metres), but after a few minutes' rest he was quite comfortable and could eat and smoke with enjoyment. He believes that a normal individual in good training should not be distressed in breathing or from palpitation in climbing; though of course the respiration and the pulse will be greatly accelerated as the result only of the muscular work.

BIBLIOGRAPHICAL

Text-Book of Psychiatry. A Psychological Study of Insanity for Practitioners and Students. By Dr. E. Mendel, A. O. Professor in the University of Berlin. Authorized translation. Edited and enlarged by William C. Krauss, M.D., Buffalo, N. Y., President Board of Managers Buffalo State Hospital for Insane; Medical Superintendent Providence Retreat for Insane; Neurologist to Buffalo General, Erie County, German, Emergency Hospitals, etc.; Member of the American Neurological Association. 311 pages. Crown octavo. Extra cloth, \$2.00 net. Philadelphia: F. A. Davis Company.

There is no lack of excellent works on psychiatry, but they are too comprehensive for the student and for the ordinary practitioner.

This book has been specially prepared by an author of great teaching and clinical experience, as introductory to a difficult subject, and we have no hesitation in commending the book to those for whom it is intended.

The translator has adapted the text to the rules of English construction, and substituted the New York State laws and commitment form, for the Prussian procedures.

American Practice of Surgery. A complete system of the Science and Art of Surgery. By representative surgeons of the United States and Canada. Editors: Joseph D. Bryant, M.D., and Albert H. Buck, M.D., of New York City. Complete in eight volumes. Profusely illustrated. Volume II. Royal octavo, pp. 778. Price, \$7.00. New York: William Wood and Company, 1907.

The second volume of this great undertaking by American surgeons has reached us, and fully bears out the impressions made by the initial number.

The text, written by fourteen specially selected authors, is divided into five parts, covering the following subjects:

Diseases which belong in varying degrees to the domain of surgery, and which are observed in certain parts of the United States and its dependencies, and in Canada; general survey of tuberculosis and syphilis in their relations to surgical work; surgical diseases of various widely distributed structures of the body; surgical diseases caused by intense heat and intense cold, and by the electric current and simple and complicated wounds, including gunshot wounds.

These articles are profusely illustrated by chromolithographic, photogravure and other plates, and by half-tone and line engravings, and the illustrations are of the greatest possible assistance in elucidating the author's meaning.

The work is perfectly executed from plates made from specially cast type, and printed upon paper of a quality to combine perfect presswork with ease in reading.

The work will consist of eight splendid royal octavo volumes, aggregating over 6,000 pages, and is sold only by subscription.

The contributor's have set forth the results of their extensive experience with such wealth of detail as to render the work indispensable to their less experienced colleagues, and in these days of specialized effort, the most experienced must realize the fact that even they are at times in need of additional information in many

fields.

Diseases of the Lungs. Designed to be a Practical Presentation of the Subject for the Use of Students and Practitioners of Medicine. By Robert H. Babcock, A.M., M.D., author of "Diseases of the Heart and Arterial System"; until recently Professor of Clinical Medicine and Diseases of the Chest, College of Physicians and Surgeons, Chicago; Consulting Physician to Cook County Hospital, etc. With twelve colored plates and one hundred and four text illustrations. First edition. Octavo, pp. 809. Price, \$6.00. New York and London: D. Appleton & Company, 1907.

This work is a companion volume to that upon Diseases of the Heart, by the same author, published a short time ago, and which met a warm reception.

The work is exhaustive and yet comprehensive, as it is intended for the student and practitioner.

The aim has been to make the text practical, and hence aetiology, diagnosis and treatment have received especially full consideration.

The author's individuality is manifest throughout the text and his style is attractive.

The author has in this work, as in his book upon Diseases of the Heart, given records of many interesting cases which will be of great interest clinically, and helpful to the practitioner in diagnosis.

Differential diagnosis and treatment are given the attention their importance demands. It may be said without fear of contradiction that there is no work extant which treats diseases of the lungs more practically or exhaustively, hence it should be in the hands of every physician.

A Compend on Bacteriology, Including Animal Parasites. By Robert L. Pitfield, M.D., Pathologist to the Germantown Hospital, etc. With four plates and eighty other illustrations. 12mo., 232 pp. Price, \$1.00. Philadelphia: P. Blakiston's Son & Co., 1907.

This little volume will serve the needs of the medical student preparing for examination, and the practitioner who wishes to keep pace with this rapidly growing science.

The subject matter has been presented in as concrete a form as possible.

The chapter on immunity gives in outline the essential points of the subject.

Medical Diagnosis. A Manual for Students and Practitioners. By Charles Lyman Greene, M.D., Professor of the Theory and Practice of Medicine in the University of Minnesota, etc. With seven colored plates and two hundred and thirty illustrations. 12mo., 683 pp. Price, \$3.50. Philadelphia: P. Blakiston's Son & Co., 1907.

The author has given us a concise, practical and thoroughly modern handbook of convenient size and form for its purpose.

It is not a mere compend, but it presents the requisite completeness through direct statement, logical arrangement and the avoidance of the unessential.

Marginal notes and running page headlines, with the illustrations, add to the simplicity and teaching value of the text.

The book is heartily commended.

This Labyrinthine Life. A Tale of the Arizona Desert. By George Alexander Fischer. 12mo.,

382 pp. New York: B. W. Dodge & Co.

There is little known of the desert from the point of view of health. To present this camp life as it is, so that the invalid can judge as to whether he is in a position to undertake it; to show to the humanitarian and the sociologist that really great results in saving life and in mitigating suffering can be achieved at a very moderate outlay; to indicate that it is the duty of the United States Government to take the subject in hand following private initiative—this has been the aim of the book. The government should be asked large centers of population throughout the country. In especial, it should establish camps on its desert lands in Arizona and southern California for this class, giving them the best of care and medical supervision at a nominal charge. In the case of those without means no charge should be made. An object lesson in this respect is the government camp at Fort Bayard, New Mexico, for the consumptives of the army and navy, which has been in operation for some years with excellent results.

Anatomical Nomenclature, with special reference to the Basle Anatomical Nomenclature [BNA]. By Lewellys F. Barker, M.D., Professor of Medicine, Johns Hopkins University; formerly Professor of Anatomy in Rush Medical College, Chicago. With vocabularies in Latin and English. Two colored and several other illustrations. Octavo, cloth, \$1.00 net.

The Basle Anatomical Nomenclature—popularly referred to as the [BNA]—is the result of an earnest, concerted effort to systematize and simplify a nomenclature which has grown in haphazard manner, become burdened frequently with multiple designations for one structure, and in general has deteriorated in scientific accuracy and value.

The expression [BNA] is a shorthand title for a list of some 4,500 anatomical names (*nomina anatomica*) accepted at Basle in 1895 by the Anatomical Society as the most suitable designations for the various parts of the human anatomy which are visible to the naked eye. The names are all in correct Latin and have been selected by a group of the most distinguished anatomists in the world, working six years at their task, as the shortest and simplest available terms for the different structures; the majority of the names were already in use in the various standard text-books, but some of them were selected from anatomical monographs not considered in the text-books, and a few of them are brand-new terms, introduced into the list, where an examination of the literature and of anatomical preparations showed that none of the names hitherto coined was satisfactory.

The [BNA] makes no attempt to limit the language of research, but only to supply a list of simple terms, free from ambiguity, for common use. Simplicity, accuracy, and serial connection will be favored by the uniform and consistent use of the [BNA] for the structures studied in the schools. The teacher's work will be simplified and the pupil's task will be lightened; instruction will be unhampered, research will flourish, and anatomical science will gain in dignity and in precision.

The [BNA] is already so widely used in English and foreign tongues by teachers of and writers on Anatomy, Physiology, Histology, Pathology, Embryology, Zoology, etc., that Dr. Barker's book is most timely in its publication.

In no other work in English are the purposes or the [BNA] described, its scheme explained, and its vocabulary given.

Paraffin in Surgery. A Critical and Clinical Study By Wm. H. Lockett, M.D., Attending Surgeon, Harlem Hospital, Surgeon to the Mt. Sinai Hospital Dispensary of New York and Frank I. Horne, M.D., formerly Assistant Surgeon, Mt. Sinai Hospital Dispensary. Thirty-eight illustrations. 12mo., 118 pages, cloth, \$2.00. New York City: Surgery Publishing Co.

This book covers a special field in surgery of interest both to the surgeon and general practitioner. The research and original investigations made by these authors in the use of Paraffin have exploded many fallacies previously maintained. It presents the Chemistry of Paraffin, the Early Disposition of Paraffin in the Tissues, Physical state of the Paraffin bearing on its Disposition, the Ultimate Disposition of Paraffin, Technic and Armamentarium. It thoroughly covers the use of Paraffin in cosmetic work such as Saddle Nose Deformity, Depressed Scars, Hemiatrophia Facialis with a large number of photographs showing cases before and after operation, with illustrations of micro-photographs of the Disposition of the Paraffin in the Tissues. It also presents other conditions of a functional character, where Paraffin can be used with service such as Incontinence of Urine, Umbilical Hernia, Umbilical and Ventral Hernia, Epigastric Hernia, Inguinal Hernia, etc. The subject is presented in a scientific yet comprehensive manner.

Full details are given as to the method of preparing the Paraffin as well as the method and manner in which it should be injected.

Organic Heart Diseases and Immunity from Pulmonary Tuberculosis. Bond Stow (*Am. Jour. Med. Sc.*, Oct., '06) believes that immunity in those affections depends upon long standing hyperæmia in the pulmonary circulation; by thus concentrating in the lungs the immunizing agents of the blood the organism is protected from invasion by the tubercle bacillus. On the other hand, pulmonary anæmia is favorable to the implantation and the growth of the bacillus. Stow would, therefore, by means of exercise in the open air, produce pulmonary congestion artificially, especially in incipient cases. This procedure, in our opinion, is not wise, at least, not when the disease has developed to a manifest degree. A tuberculous lung will heal best when it is given as little exercise as possible.

Big Fees. Doyen, of Paris, succeeded in retaining his £4,000 fee for his unsuccessful treatment of Mrs. Crocker. Yet this is far from constituting a record. Nearly a century ago, Sir Astley Cooper received £5,000 for a trip to Vienna to attend upon Prince Esterhazy; and for a journey to St. Petersburg to vaccinate the Empress Catherine II. Dr. Dinsdale received £10,000, an annuity of £500, and a Russian barony. An English army surgeon received £10,000 for doctoring the Nawab of Rampur during an attack of rheumatism; the Czar of Russia once paid £15,000 to Prof. Zacharine, of Moscow, for two days' attendance; and Dr. James Gale, the blind medical electrician, is said to have received £50,000, perhaps the largest fee in medical annals, for a few weeks' successful treatment of a millionaire's leg. It would seem, in the latter instance, as if extreme traction had been exerted upon the offending member.

CORRESPONDENCE

INVESTMENTS FOR PHYSICIANS.

To the Editor of the MEDICAL TIMES:

It may seem a far cry from the alimentary canal to the pocket-book, and the writer apologizes in advance to any who would offer the criticism that the cobbler should stick to his last. Indeed, the writer has felt inclined to perpetrate some such article as this every time the mail has brought advertisements of gold and copper mines, stock companies of various kinds, circulars of brokers, etc.; but has waited in the hope that some one better able to discuss the subject might do so. As just intimated, the writer is not a financier nor a capitalist except in the sense insisted on by text books on political economy, that every newsboy or seller of matches has capital. But, partly for himself and partly for others, he has had some rough clinical experience with various forms of investment, and the mere fact that physicians continue to be deluged with advertisements of the most transparent schemes to make money (for the promoters) shows that there is urgent need of some such article as is here attempted.

First of all, the fact that it is no uncommon occurrence for an active, successful physician to die leaving an estate of ten, fifteen or twenty-five thousand dollars, when his obvious yearly professional and domestic expenses have been as great, shows that provision for one's own old age and for dependents has not sufficiently appealed to the profession.

One other thought may be ventured as a preliminary: it pays, in the long run, to be honest. Probably no class of men is so constantly tempted to dishonesty as physicians, for no other class has quite such intimate, extensive and expensive relations with dead beats. No illusion is here made to gross, straightforward dishonesty as illustrated by the burglar, highwayman and professional thief, but to the methods of the dead beat. It is, therefore, a matter of congratulation that very few physicians fail to meet their obligations.

One of the first investments offered to a physician is life insurance. Unless the conditions are peculiar, the best form of insurance is found in the old line companies, especially since their re-organization and investigation. Mutual insurance, which combines social features and whose power to protect depends upon the maintenance of a fraternal organization and a steady influx of young, healthy members, is not very reliable. Too often, after ten or fifteen years, the increasing death rate renders such insurance excessively costly, younger members are frightened away and the society gradually becomes a small coterie of elderly men insuring one another at a cost which approaches more and more the limit of possibility.

Every young man ought to carry life insurance, preferably of the kind which returns a fixed sum after 20 years, or some other convenient period. The earlier this is taken, the cheaper it is and the earlier the accumulation can be had for capital in middle life. The fact that the young man has no one dependent on him, is no argument against insurance. In the natural course of events, he will or should have, and, at any rate, the possibilities are that he will live long enough to enjoy the accumulated investment.

As to amount, a middle course should be steered between inadequate insurance and an amount that will

cause hardship or actual loss of investment, by the size of the premiums. Men with large incomes but small capital, naturally carry heavy insurance. For men of the average means of physicians, an insurance equal to one or two years' income, though not affording more than temporary sustenance for the survivors, is a fair compromise, subject to due regard for particular circumstances.

Withal, insurance should be regarded as insurance and not as investment. Conditions are such in business circles that insurance companies cannot afford to pay more than about $3\frac{1}{2}$ per cent. interest on the money entrusted to them—at least not while they continue to pay fancy salaries and 50 per cent. commissions. Statements regarding profit sharing are usually lies. So-called gold bonds are gold bricks. In the first place, the folly of a contract in which a man buys an investment without paying for it, and in which he receives interest not amounting to his annual or semi-annual payments on account, ought to be apparent. The writer offered to buy a gold bond issued by a prominent insurance company and to pay cash for it instead of an annual premium. Now, in most business transactions, cash is better than credit, but in this instance, the cash price of the "5 per cent." gold bond was a trifle over \$12.50 per \$1000. A middle aged man, taking a straight annuity insurance, can get just about the same rate of interest (6—6.5 per cent.) that he can from very favorable personal investment, but at his death, the company instead of his family, take the capital. An old man can get very favorable returns from an annuity.

Considered merely as an investment, a savings bank is much better than the most liberal endowment policy, paying better interest and having the additional advantage that the capital can be withdrawn on short notice instead of only at death or the expiration of a long term of years.

It is a very practical point to remember that perfectly reliable banks still pay 4 per cent. on quiet deposits—as in Pittsburgh, Cleveland, Rochester and most Western cities—and that the expense of banking at a distance is very slight. Every half per cent. on a thousand dollars means a day's life on a fairly comfortable scale or nearly a week of actual existence. A practical advantage of bank investments is that they can be divided so as to insure against loss in bulk, and that they are, practically at least, not attachable or taxable. While the rate of interest is low, such investments require a minimum of trouble and, considered simply as a provision for old age, can easily be magnified in purchasing power by taking up a residence in Europe where the rates of wages and hence, of all expenses are from 25 to 50 per cent. lower than in this country.

The superiority of the savings bank to life insurance—considered purely as an investment—is well shown by the following statistics: In November and December, 1893, a man took out a policy for \$25,000 on the ten-year endowment plan, in each of the four standard companies. His annual premium in each was \$2,670. At the end of the ten years, he received back his investment of \$26,700, with the following profits, respectively: \$1,845, \$2,993.50, \$3,652.50, \$4,304.97. If he had paid the same premiums into a savings bank and had the interest compounded semi-annually, on a 4 per cent. basis, we figure that he would have received \$6,134.40.

Various forms of mortgage bonds pay from 3 to 6

per cent. interest. Government bonds deduct about 1 per cent. from the standard minimum interest prevailing and are non-taxable. Bonds of private corporations in good financial standing are usually sold above par, so that the net interest is reduced to approximately 4 per cent. In general, the higher the interest the more risky the investment. Bonds for water-works and similar improvements, issued by small towns, are said to be safe and to pay fair interest. There is considerable trouble and expense in buying and selling desirable bonds in small blocks.

Shares of stock draw dividends which are usually stated as interest but it should be clearly understood that this payment is not assured and that the small buyer is at the mercy of those in control. The stock business is quite complicated, but, in general, it may be said to be based on borrowed capital. If the business does not succeed, the capital is lost by the stockholders. There may be reasons why it is to the advantage of those in active control of the business to run behind and to sell out to some other concern. If the business succeeds beyond expectations, those in active control dislike to pay large dividends to stockholders who have no special knowledge of the business. Thus, they raise salaries, enlarge the plant, or water the stock to cut the dividends to proper proportions.

Loans on property should, by investors, be limited to real estate and every precaution should be taken to insure a perfect title and a liberal margin of value beyond the face of the mortgage. Chattel mortgages and loans on diamonds, pianos, automobiles, etc., though tempting enough in advertising columns, are likely to result in useless property, even if not stolen or misrepresented. Banks rarely loan on real estate, more than half the total value, and, in these times they usually get 5 per cent. Six per cent. mortgages should not exceed 80 per cent. of the real value and it is a safe rule never to take a second mortgage, unless one already holds the first mortgage or unless the first mortgage is held by a bank and the holder of the second is willing to assume the property. It should be remembered that it is a somewhat tedious process to foreclose a mortgage, that some odium attaches to the foreclosure and that the expense is about \$200. Also, it must be remembered that a large number of speculators who cannot sell their property outright, will mortgage it as high as possible and then "sacrifice" it. At one time, the writer, seeking for a friend a very modest investment of about \$1,500—\$2,000, looked over about \$100,000 worth of property before finding a safe mortgage at 6 per cent. In many States it is impossible to avoid taxation on mortgages and, unless a safe 6 per cent. mortgage can be found, this tax and the difference between simple and compound interest, counting also, incidental expenses and trouble, make it about an even choice between the savings bank and the mortgage.

The actual purchase of real estate involves risks and responsibilities and, at the same time, in the long run affords a conservative and fairly well paying investment. Only under unusual circumstances, does the property itself disappear, as by land slides, erosion of rivers, etc., for land, and fire, without insurance, for buildings. Only during booms, can bare land be bought, held without improvement, and sold at a profit. Not counting paving and laying of water mains, sewers, etc., which often double the first cost of cheap lots, ordinary taxes and

interest, expense for removing snow, repairing side walks, etc., aggregate about 8 per cent. annually. For instance, a lot for which \$60 a lineal foot was refused in 1889, should be worth to-day \$150, merely to avoid loss. As a matter of fact, the same lot is still for sale at \$60. Two rules should be followed in the purchase of real estate: Buy within accessible distance and buy what you can, yourself, manage or use. Thus, for a physician in a small village, a farm within driving distance, rented, worked on shares or by hired labor, subject to supervision, usually pays well—at least 6 per cent. net. The same farm held by some one at a distance especially if unfamiliar with farming, might bring no revenue at all.

A single house, especially in small town, rarely brings as rent, anything like good interest. The more families can be crowded into the same land area, the better the return. Here, of course, there is apt to be a conflict between business interests and sanitary science or even humanity. Still, with due regard for light and ventilation, land space may be economized and the extra cost of construction is more than compensated by the relatively greater return in rents. Generally speaking, improved real estate should bring in a return of about 10 per cent. gross on the investment. This gross revenue will be distributed about as follows: Taxes and insurance, 2 per cent.; taxes are usually more in theory, but the valuation is on a sacrifice sale basis; repairs, including papering, painting, plumbing, etc., 1½ per cent.; net revenue, 6½ per cent. The occasional vacancy or dishonesty of tenants will, in the aggregate, reduce this net income and the trouble of such investments is considerable. Still there is no investment absolutely free from trouble, and, in the long run, improved real estate is about as reliable as anything. A friend told the writer that during the terrible seven years' plague of business depression, from 1893 to 1900, under the most adverse circumstances, as regards vacancy and repeated bursting of water pipes on account of low water pressure during two successive winters, he still netted about 3½ per cent. This was as good as bank interest, and, meantime, many savings banks failed. Under favorable circumstances, the same property has netted 7 per cent.

Under the existing high prices for labor and material—and material itself has increased in price mainly on account of increased wages—it is difficult to build substantially, to compete with existing buildings. Of course, fluctuations in demand and supply of rentable property, affecting whole cities and towns, large districts in the same city, or small areas, often modify values considerably and even suddenly. It is said that less than 10 per cent. of the population have an income of more than \$2,000 per family. A family with this income will not usually pay more than \$30 a month rent, while the family with \$1,000 will usually have to pay rather more than half this amount. Broadly speaking, the great majority of rents in cities must, on a purely statistic basis, range between \$10 and \$20 per month. Certain cities, especially the metropolis, Washington and some others, afford exceptional conditions, and the qualification must also be made that allusion is made to the average quarters of an ordinary family.

Whether with regard to residence or business property, a safe rule for investors is to follow precedents of the city, to compete with existing demands in a given district and to anticipate, if possible, a gradual change in

the occupancy of a given district.

It has been so often declared that physicians are poor business men that the censure has almost lost its sting and many physicians seem to take pride in their thriftlessness. But it seems a pity that money earned so hardly and paid with so much reluctance as the medical fee, should be wasted on fake gold mines, and manipulated stock. Better blow it in for what at least gives temporary amusement. The motto of Michigan, itself a paraphrase, may well be paraphrased by the seeker after any good thing: "Si quæris pænisulam amœnam circumspice" (If you seek a pleasant peninsula, look about). Instead of dropping his money down a hole in Alaska or into a scheme for bringing fibre from Mexico or cultivating rank coffee in Honduras, or into the coffers of a druggist who wants to make bad tablets by the million and secure their sale by the interest of the stockholders, let the physician look about him for tangible, insurable, usable property that promises no fancy income but affords a reasonable prospect of a fair return. The writer has been surprised at the number of substantial flat buildings, stores, etc., not too old, but constructed before labor and material reached prohibitive prices, offered at prices equivalent in return to 7 per cent. bonds and in safety of 3 per cent. bonds. If one physician cannot command the capital for such an investment, or does not feel able to assume the responsibility of a large mortgage, it ought to be possible for two or more to combine, informally for joint benefit.

A. L. B.

IS HOMEOPATHY A PART OF RATIONAL MEDICINE?

To the Editor of the MEDICAL TIMES:

The distinction between empiricism and what we technically call rational medicine is that the former is characterized by regard for a *posteriori* reasoning—the latter by regard for a *priori* reasoning.

Were regard for a *priori* reason the only characteristic of what we technically call rational medicine, homeopathy would be a part of it, for that similars cure (the reason for, in a given case, the choice of a particular similar) is a *priori*. I say not that one's reason for accepting the law of similars must be a *priori*, but that the law accepted is a *priori* reason for his choice of a particular similar in a given case.

What we technically call rational medicine has the further characteristic that in any given practice of it an immediate end (*i. e.*, an end to which no other end is mediate) in itself knowable is sought. This characteristic of what we technically call rational medicine differentiates it from homeopathy, for in any given practice of homeopathy an immediate end is sought *not* in itself knowable, *viz.*, an immediate change from what is abnormal to what is normal (or approximately normal) in vital processes.

As in any given practice of what we technically call rational medicine an immediate end must be sought in itself knowable, it would appear that the particular cure of which *similia similibus curantur* is the law transcends the possibilities of that practice. This makes clear what is the real issue between the schools. The issue is whether what we technically call rational practice is the *ne plus ultra* in medicine, or whether *similia similibus curantur* is the law of a cure which tran-

scends the possibilities of that practice. I identify myself by name with homeopathy, that my position upon that issue may be known. To him who asks, "May you not be mistaken in believing that there is any such cure as you believe *similia similibus curantur* to be the law of?" I reply "Certainly I may."

If we attach no technical meaning to the term *rational medicine*, and use the word *rational* with its broadest meaning, any practice for which there is good reason is rational—empiricism and homeopathy included.

CHAS. S. MACK, M.D.

LAPORTE, Indiana.

The anti-tuberculosis propaganda is being actively pushed, as may be judged from the report of the Charity Organization Society, summarizing the work done in 1906. The disease, it is estimated, costs the State of New York alone 14,000 lives and at least \$30,000,000 yearly. Tuberculosis exhibitions have been held in various cities. For the first time considerable numbers of people have had brought home to them in a way easy of comprehension what tuberculosis means to the individual and to the race, and the very cogent and adequate reasons why the community in general should zealously support the now rapidly forming organized movements for the prevention of the disease. Up to this time fourteen exhibitions have been attended by some 300,000 persons in New York, Boston, Philadelphia, Chicago, Milwaukee and other cities. These exhibitions demonstrate conclusively the curability and preventability of consumption, the facts being demonstrated by lectures, by photographs of sanatoria, hospitals, dispensaries, by models of tenements, sleeping shacks and lean to's, by diagrams and charts and pathological specimens. The report referred to complains, however, of the indifference of the general public: "The slow, torturing suffering of this neglected army of sufferers, the sorrow to tens of thousands, the children left without protectors, the parents, husbands and wives made desolate, the thousands upon thousands infected because of ignorant carelessness—this, in brief, is the price paid for this public unconcern, for ignorance and shortsightedness."

Landry's Paralysis.—The treatment is not satisfactory, declare Hall and Hopkins (*Jour. A. M. A.*, Jan. 12, '07). It must be chiefly supportive. If the bladder is involved it must be carefully irrigated; and urotropin is indicated if infection threatens. In one case sodium salicylate was given, followed by potassium iodide and mercurial inunction, despite the absence of syphilis. Later large doses of strychnine were given, together with faradization and massage to the paralyzed muscles. Three drachm doses of fluid extract of cascara were needed in the early stages, because of the profound intestinal torpor; later 3ss sufficed.

Leprosy in Russia.—The government is making active efforts to resist the spread of this disease in the Baltic provinces, where it is very common, states *American Medicine*. A society for its cure has been formed at Dorpat and sanatoria have been built. Doctors have traveled about, seeking the leprosy, but they have met with great difficulties, as the people refuse to submit to examination or to avail themselves of the treatment offered. The disease has indeed made immense strides; there are in Asthonia alone 5,000 lepers.

RETROSPECTIVE

Pulmonary Syphilis.—Recently Hughes and Willson have published the history of an interesting case of pulmonary syphilis most closely simulating phthisis; it was as follows: A man aged 32, family and personal history negative, who complained of cough and profuse expectoration which persisted after a severe cold. Within four weeks of the onset of his trouble he expectorated blood, at first occasional small streaks in the sputum, but gradually increasing in quantity; yet the patient appeared well nourished and felt well in every way except for his cough. Physical examination was negative except so far as it concerned the chest, but the right chest seemed more prominent than normal, especially over the lower portion. The expansion was relatively impaired over this area; while percussion resonance was also impaired over the entire right lower lobe, especially posteriorly. Tactile fremitus was slightly increased, and fine crackling rales and a scraping friction sound were heard on deep inspiration just below the upper border of the right lower lobe. Above and to the outside of this area skodiac tympany was easily obtained. The apex was negative, and the left lung was normal except for poor expansion. No evidences of a syphilitic infection could be found. The temperature varied between 97 and 100, and the pulse averaged 90; the respirations gradually fell from 30 to normal. The urine was normal. There were no night sweats, little loss of weight; the appetite was good. No tubercle bacilli could be detected at any time in the sputum. Aspiration of the affected lung gave a syringe-ful of dark red blood, floating in which were large flakes of lymph, evidently from the surface of the pleura. Microscopic examination of the fluid was negative. The diagnosis hovered between incipient pulmonary disease, tubercular phthisis and syphilis. Finally the patient was placed on potassium iodid, one dram three times a day, and within twenty-four hours the expectoration diminished and there was less blood. After three days the sputum contained no blood, and the cough had largely disappeared; and within four days more there was no cough, the sputum was mucopurulent, but in slight quantity, and the patient felt perfectly well. On therapeutic grounds, therefore, a diagnosis of pulmonary syphilis was made in this case.

Councilman went over the literature of lung syphilis some years ago, and excluding the congenital syphilis of the lungs in infants and the doubtful cases of adults, found that the disease was a comparatively rare one, although it is difficult to see why syphilis of the lungs should be such a rare disease. That the lungs are so frequently the seat of tuberculosis we can understand from the ease with which the tubercle bacilli can enter them, and, of course, the syphilitic virus would not be apt to enter the lungs from the bronchi except in cases of syphilitic ulcerative bronchitis, but one would suppose that they should be equally exposed to the action of the virus as other organs—the liver, for example. Two cases of syphilis of the lungs which died at Johns Hopkins Hospital were reported by Councilman. Both of them were typical cases, and one of them in the extent and the acuteness of the lesions, offered the most favorable opportunity for the study of the process. In this case there is an entire absence of clinical history; the man, J. F., came to the dispensary of

the Johns Hopkins Hospital on the 20th of last June. He walked with difficulty to the dispensary, holding himself up by the iron railings, entered the building, and immediately fell to the floor; his face was intensely cyanotic, he gasped for breath, and died in a few minutes. All that could be learned from his friends was that he had been suffering for some time from Bright's disease, and that morning, feeling particularly unwell, had determined to apply to the dispensary.

The autopsy was made two hours after death, and showed the body to be that of a large, well-nourished man. There were cicatrices and coppery discolorations over the tibiae, the inguinal glands on both sides were enlarged and indurated, and on the glans penis there was a well-marked cicatrix with a loss of substance of the glans. Death was due to an acute endocarditis with rupture of the chordae tendineae of the mitral valve; there were several distinct ulcerations on the edge of the mitral valve; the chordae tendineae of the left flap of the valve were ruptured. The ruptured chordae and several others were thickened; they had an opaque white color, and were covered with small fibrinous masses. The whole heart was greatly hypertrophied and weighed 730 grams. All of the articles were thickened. This was most marked in those of small calibre. The spleen and liver were much enlarged and hyperæmic, while the kidneys were very large, both together weighing 700 grams. The surface was slightly mottled, the capsules in most places firmly adherent, the surface sprinkled with minute, intensely red points, and around these there were slight opacities. On section the cortex was thicker than normal, it was moist, the stricture was obscure, and there were red points and streaks both in the cortex and pyramids. In the œsophagus, 7 centimetres from the pharynx, there were two superficial ulcers, while in each pleural cavity there were about 200 c. c. of clear, slightly blood-stained fluid; both lungs were adherent by a few old fibrous adhesions. The condition of the lungs was most interesting. The right lung was voluminous and did not collapse on removal from the chest. There was no œdema of the entire lung, which was most marked in the lower lobe. The anterior edge and the apex were somewhat emphysematous.

The pleural surfaces were smooth, except for the fibrous adhesions, while many small, firm nodules could be felt beneath the pleura, along the posterior border of the lower lobe. On section of the lung there were numerous areas of consolidation in the posterior portion of the lower lobe; these areas in some cases were more or less connected with each other. The solid portions on section were of a grayish red color, the cut surface perfectly smooth and dry; only a little slightly blood-stained fluid could be squeezed from them. In the centres of some of these areas there were white, opaque, irregular caseous masses, with sharp, clear-cut margins. They projected slightly above the surface, were firmly adherent, and with some difficulty could be broken away, leaving a smooth cavity; the caseous material so broken out was very firm, it could not be crushed beneath the finger nor broken up easily with needles. The lung-tissue between and around these solid areas intensely œdematous, but after the œdematous fluid was squeezed out the tissue was firmer and more voluminous than normal. The portion of the lung that was affected comprised about one-third of the lower

lobe. The left lung was voluminous and œdematous. Emphysematous in the upper lobe and along the anterior edge of the entire lung.

Along the anterior edge irregular contractions, and below these small stellate cicatrices. In the lower lobe, just below the root of the lung, was a small induration similar to those in the right lung, and in the centre of this a caseous focus. The microscopic examination of the kidneys made fresh, and after hardening in Muller's fluid, also in alcohol, and in Fleming's fluid, showed numerous alterations. In the fresh sections there was marked fatty degeneration of the epithelium of the convoluted tubules and the smaller collecting tubules. Sections made after hardening in the various reagents mentioned showed marked changes in the glomeruli. The capillary vessels in these were thickened, the thickening being due to the formation of hyaline; some of them were obliterated; portions of the glomeruli, and where the alterations were more profound, the entire structure, were changed into masses of hyaline. There was a marked proliferation of the capsular epithelium, and in some cases there seemed to be a growth of connective tissue from the capsule into the so-altered glomeruli. The tubes were dilated, filled with granulated detritus, cast-off epithelial cells, and albumin. A general œdema of the kidney and a diffused formation of connective and granulation connective tissue chiefly around the glomeruli was found, while all of the arteries were thickened. The liver showed atrophy of the liver-cells, a marked hyaline thickening of the capillaries, with dilatation of the lumen. The heart lesions were not those of an ordinary endocarditis. Sections of the broken and swollen chordæ tendineæ showed in all of them a necrotic process, with formation of hyaline. The microscopic examination of the lungs gave the most interesting results. In these the principal lesions were foci of interstitial pneumonia, with central necrotic caseous masses, the foci being separated from one another by a tolerably firm though œdematous lung tissue. Sections were examined after hardening in Muller's fluid and in alcohol. The Muller's fluid specimens were stained in hæmatoxylin and eosin. Examined with a low power, the most striking thing about the caseous areas in most cases was the very sharp limitation of the necrotic process. The necrotic area stained brightly with eosin, and there was an entire absence of nuclei stained with hæmatoxylin; this was particularly marked in the larger and more definite area. The smaller necrotic foci, though in most cases sharply limited, yet in places seemed to pass into the surrounding tissue, and along the edge there were numerous polynuclear leucocytes which had wandered into the caseous mass. Even with a low power the structure of the lung could be recognized in the caseous tissue. The walls of the alveoli could be made out; they were thickened, and stained more brightly than the contents. In them were irregular masses which, with a high power, could be recognized as fibrin and large necrotic cells. In many places the alveolar walls were changed into smooth hyaline-looking masses, which brightly with eosin. The tissue around the larger necroses was a tolerably firm connective tissue, rich in spindle-cells. In most cases this entirely obliterated the lung tissue, while here and there the walls of the alveoli could be recognized; mixed with fibrous tissue were masses of fibrin.

The walls of the alveoli were thickened, and in most cases the connective tissue masses seemed to result from this. In other cases there seemed to be a growth of fibrous tissue directly into the alveoli. Around the smaller necroses the fibrinous exudation, with thickened alveolar walls, was the more characteristic feature; and here the whole tissue seemed to become necrotic, the central necrosis enlarging by the advance of the process. In other cases the induration was not so marked. In place of firm connective tissue there was a loose œdematous tissue which contained very few cells. In this the alveoli could be recognized as small, irregular spaces, scattered here and there through the tissue and lined with cuboidal epithelial cells. Most of these were filled with desquamated epithelium similar to that lining the walls. The condition of the lung outside of the connective tissue, in the portions which microscopically had an œdematous appearance, proved of most interest because here the process was more acute. Even the first glance at this tissue showed a decided atrophy of the walls of the alveoli. The alveoli were distended and filled with large, swollen, pale epithelial cells and fibrin; in some places there were small hæmorrhages. Along with these large epithelial cells and fibrin were small, smooth hyaline masses which varied in size from that of one-half the diameter of a red blood corpuscle up to that of one of the large epithelial cells. They stained clearly with eosin, and were best marked in the Muller's fluid specimens. Closer examination showed that they resulted from a hyaline degeneration of the epithelial cells. Many of these cells showed various stages leading to complete hyaline degeneration. The most of the hyaline was formed at one point at the periphery of the cell, and in some cases these hyaline masses projected in a polypoid manner from the cell. Other cells had undergone a complete hyaline metamorphosis. The atrophy of the alveolar walls was everywhere marked, but in some places more extensive than others. In the most advanced places no structure of the wall could be recognized; it was changed into a thin smooth mass of tissue, with but few nuclei scattered along it. In the less advanced cases the capillaries were in great part obliterated. The obliteration of the capillaries was due to a hyaline degeneration of their walls. They were for the most part converted into rigid tubes which remained open on the sections, and many of them were so narrowed that the lumen would not admit the passage of a red blood corpuscle. The hyaline material in their wall stained slightly with eosin. It was more refractive than the ordinary connective tissue, and was best seen in the sections of the alcohol-hardened tissues, which were stained with picro-carmin and amounted in glycerine. Here and there the lumen of the vessels was entirely obliterated and they could be followed as rigid hyaline tubes for some distance. Many of the small veins and arteries also contained this hyaline material in their walls, or were entirely obliterated by it. In the immediate neighborhood of the arteries and bronchi there was more formation of connective tissue; the alveolar walls here were thickened and contained numerous small, round cells. In many instances there seemed to be a growth of connective tissue from the bronchi and arteries into the atrophic lung following along the walls of the alveoli. The lung adjoining the areas of loose œdematous connective tissue showed the same alterations. Here

the loose connective tissue seemed to proceed directly from the alveolar walls. In this portion of the lung the alveoli seemed rarely to be entirely destroyed, and could be recognized in the small clumps of pale granular epithelial cells distributed everywhere through the oedematous tissue. All of the bronchi in the affected portions of the lung were altered. The most characteristic lesion in them was a decided narrowing of the calibre, the walls otherwise preserving their integrity. The narrowing was due to a growth of connective tissue into the lumen, pushing the epithelium before it. In some cases this took place from all sides, in others there was a polypoid mass of tissue projecting into it from one side and entirely occluding the lumen. In most cases the epithelium was perfectly preserved. There was almost an entire absence of leucocytes in the tissue. Only at the edges of the most recent gumata and in a few of the alveoli were any found. In all the portions of the lung affected there was an endarteritis of the small arteries. In some cases this led to complete occlusion of their lumen. In some of the smallest arteries there was the same hyaline degeneration that was seen in the capillaries and small veins. Sections made through the large bronchus and blood vessels to the lower lobe showed thickening of the perivascular tissue, with a marked small cell infiltration of the bronchial mucous glands. There was also a slight endarteritis of the pulmonary artery. The bronchial arteries were not affected. The other case showed lesions which were less extensive and much more advanced than in the first case. They were further obscured by an acute inflammatory process which did not seem to have any connection with the syphilitic changes. In this latter case there was marked destruction of lung tissue. This was caused not only by the direct substitution of the connective tissue, but by its farther contraction compressing portions of the lung and giving rise to emphysema of the adjoining portions. To this condition the dyspnoea, from which the patient had been suffering for two years preceding her death, was due.

The chill and marked increase in the dyspnoea at the last were due to the addition of an acute bronchopneumonia. In this case all of the changes seemed to have reached their full development. There seemed to be no extension of the gummata nor of the interstitial pneumonia, and the early steps of the process and the advance of the lesions so well seen in the other case were absent. At first all the lesions were ascribed the obliterating endarteritis. The formation of interstitial tissue is often seen to be dependent on this. The endarteritis in the first case was most marked; it was acute and seemed to be the same process which led to the narrowing and occlusion of the bronchi and the alveoli. In every interstitial process in an organ a preceding destruction of the tissue occurs. This idea of a primary lesion of tissue, which was first advanced by Weigert, can be demonstrated in many instances, and seems to be too general a pathological law to admit of exception. In the first case the very beginning of the lesions could be made out in the atrophy of the alveolar walls. It does not seem at all probable that this was due to the endarteritis, for this was most marked in the most altered portions of the lung, and was generally absent where the atrophy of the alveoli was most marked and the process, as shown by the fibrinous exudation,

was most acute—that is, in the tissue outside of and between the interstitial portions. Further, the lesion was too widespread to be the result of an endarteritis, unless of the branch of the pulmonary artery supplying this portion of the lung. There was a slight endarteritis in this, but it was not more than would be accounted for by the destruction of the capillary territory in the portion of the lung involved. The character of the endarteritis would rather lead us to regard it as secondary. There seemed to be no lesion of the muscular coat which might account for it, but the arteries were narrowed by an even formation of connective tissue all around the intima. The atrophy of the alveolar walls was connected with the most acute changes, with the fibrous exudation, and with proliferation of the epithelium, and, as far as could be seen, the hyaline degeneration of the capillaries was the first step in this atrophy. It would be a point of great importance to ascertain whether this lesion in the lungs was caused by the direct action of the syphilitic organism or by some soluble substance produced by the organism and affecting the tissues, somewhat in the manner that the diphtheritic virus acts. The focal character of the lesions in the lungs would lead us rather to regard them as due to the direct action of the organism on the tissues, but very similar lesions were found in the other organs, particularly the kidneys, and here the extent and the diffuseness of the process would lead us to regard the lesions as due to a soluble virus.

The analogy between tuberculosis and lung syphilis is shown by the formation of the gumma being essentially a caseous pneumonia; the chief lesions in the tuberculous lung being the results of a caseous pneumonia, but there is difference in the nature of the process, thus the tuberculous caseous pneumonia is the direct action of the tubercle bacilli on the tissue. The exudation is almost entirely cellular, resulting in a mass of dead cells which can undergo no further change except a liquefaction of the cells themselves or the substance between them, as the result of either the further action of the tubercle bacilli or other organisms which have entered the tissue. The gumma shows the primary process as the atrophy of the alveolar walls, due most probably to a hyaline degeneration of the capillaries. The epithelial cells within the alveoli, the vessels and the alveolar walls, all gradually undergo the hyaline metamorphosis and become changed into a dense solid mass of hyaline. This hyaline seems to be one of the most resistant substances, and when once formed shows no more tendency to undergo further change than does the closely related amyloid substance. Is there a syphilitic phthisis? Many authorities think not. In the syphilis of the lung there is only the production of connective tissue and the dense hyaline gummata; there is no entire absence of the ulcerative processes which we find in tuberculosis. Instead of a caseous bronchitis, with destruction of their walls, there is the same process of connective tissue formation in the bronchi leading to their obliteration that we find in the alveoli. There may be bronchiectases produced by effects of the contraction of the fibrous tissue which has formed around the neighboring bronchi. In some of the other cases reported there were cavities described with perfectly smooth walls, which were almost certainly bronchiectases. Most of the cases reported were published before the discovery of

Koch, when our means for diagnosticating tuberculosis were not accurate, though even then a close study of the syphilitic and tuberculous processes should have been sufficient for diagnosis, but such close study does not seem to have been made. Yet, after the discovery of Koch, and the great extension of our knowledge of tuberculosis, a case was recently reported by Potain of mixed syphilis and tuberculosis. The patient had constitutional syphilis. There were large ulcerated cavities in both lungs. In a base of one lung was what the author described as a syphilitic pneumonia. There was a dry caseous consolidation. Tubercle bacilli were found in the cavities, and, strange to say, they were also found in the caseous pneumonia at the base.

Tuberculosis work in Europe is dwelt upon by J. Walsh (*Johns Hopkins Hosp. Bull.*). Sufficient rest, fresh air and good nourishment are at present the only valuable means of phthisiotherapy. The sanatorium methods in different countries are contrasted. The Germans hold the purpose of such an institution to be: the cure of the patient; his education in the way of prevention in order to avoid further infection; the prevention of further contagion on the part of the patient for the time he is in the sanatorium. Dr. Walsh finds the purpose of the sanatorium in England to be chiefly educational. France, carrying her natural antagonism to Germany even into healing methods, opposed the sanatorium until ten years ago; and have directed all their efforts to the prevention of tuberculosis in the child and to the treatment of tuberculous children. There are more hospitals for tuberculous children in France than in all other countries combined. In the United States the purpose of the sanatorium is held to be twofold: the cure of the patient, and his education and that of his friends. The private sanatoria in Germany are magnificently equipped; yet the treatment in them seems nothing like so good for the patients as it is in the charitable institutions. No doubt in the latter the orders of the physicians have to be obeyed, and are enforced much more strictly.

Etiology of Infantile Tuberculosis.—Calmette believes with Comby in the extreme frequency with which children sustain tuberculous infection from centres within their own families; he believes, however, contrary to the general tendency among students nowadays, that the cases are rare in which such infection occurs through the medium of cows' milk. Nevertheless, it is his opinion that the infection usually enters through the intestines and lymphatics and that the primary tuberculous lesion is always vascular.—*La Semaine Med.*, Dec. 22, '06.

The Toothbrush.—A London school physician complains that among 1,000 children he found two who used this article so essential to the hygiene, both of the mouth and of the digestive tract. He urged that hereafter each pupil shall receive a tooth brush "to be numbered and hung on a rack" when he begins his year's work. If used, how will that tooth-brush look at the end of the year? This incident illustrates, the *Evening Post* well observes, the changing conception of the function of the school. "First, it was merely an institution for absorbing book learning. Next, it was thought that there should be moral education as well; then came manual training, and of late we have had the intro-

duction of the school nurse and medical officer, the school sanitarium and the school clinic. The school lunch we have grown familiar with, and breakfast is now urged in many parts of the world. Hygienic shoes, to be furnished by the school so that there may be a proper development of the children's feet, will, no doubt, be the next suggestion. One cannot help wondering how much further this paternalistic movement in the schools is going to carry us. Shall we live to see the universal adoption of Mrs. Tingley's idea of taking the children from their parents entirely? If it is desirable to give our children good food because they get pernicious cooking at home, surely they are entitled to clean dormitories in place of the overcrowded and unsanitary rooms of the tenements." In very truth we do seem to be afflicted with paternalism run riot. But who cares; cannot the taxpayer afford it? Our annual budget in this city is already one hundred and thirty millions; what matters the addition of several more!

The Rubber Teat and Jaw Deformities are dwelt upon by T. F. Pedley (*Brit. Med. Jour.*, Oct. 20, '06), who points out the damage done to children by the use of the "baby comforter." The child feeding at its mother's breast does not suck the milk, but squeezes it out by the pressure of its jaws; in fact, it drinks rather than sucks. With the rubber teat, on the other hand, the child sucks—which quite differently affects the development of its mouth. The habit of mouth breathing and the deformities of the teeth and jaws, so evident to pediatricists, are in large measure due to the artificial feeding of infants with bottle and rubber teats and the use of the dummy teat or "comforter." The latter should be banished from the nursery; and children who cannot be breast-fed should be spoon-fed.

Moral Backwardness. A. Pile (*Monatschr. f. Kinderheilk.*, May, '06) finds the legal notion of moral defectiveness to be very simple and easy; but the scientific view to be more complex. The defective sphere has much more influence on ethical feeling than has the intellectual; therefore, as intelligence and moral feeling are relatively independent of each other, defect may be present in one alone. Perversion of altruistic feeling may coexist with intact intelligence. Case: A boy of 15 had been confined in an institution for three years because he was so undisciplined that he could be controlled neither in school nor in the reformatory. A thief and liar, wicked, impudent, cynical and shameless, he was nevertheless well developed intellectually; he contrasted with the numberless cases in the same institution of simple, feeble-minded patients who were quite harmless and obedient. This boy was quite refractory to all efforts at improvement.

The absorption of pathogenic bacteria is a subject carefully considered by R. L. Thompson (*St. Louis Med. Rev.*, Jan., 19, '07). Special attention is directed to the ports of entry and the routes of absorption of pathogenic bacteria in the human body. How the tubercle bacillus reaches the lung is a question which has of late been especially pregnant; and Thompson recognizes as do now most open-minded observers, that pulmonary tuberculosis frequently results from the entrance of the Koch bacillus into the gastro-intestinal tract. Schlossman and Engel have "introduced tubercle bacilli into the stomach by means of gastrostomy and have found them in the lungs a few

hours later." The same bacilli? we are tempted to ask. Nevertheless the experiment, we believe, was a sound one, and is substantiated by that of Ravenel, who fed a dog butter containing tubercle bacilli and an hour or so afterward, on killing the animal, found tubercle bacilli in the chyle of the thoracic duct. The experiments of Schlossman and Engel have, however, the peculiar value to have excluded the possibility of the bacilli reaching the lung from the pharynx. Uffenheimer (*Deut. Med. Wochenschr.*, Nov. 15, '06) repeated their experiments, using instead the *B. prodigiosus* which he injected into the rectum with the same results; in every case he found this bacillus in the lungs. In another series of cases, however, Uffenheimer ligated the œsophagus before his rectal injections, and in these cases he obtained negative results; the lungs were free of the *B. prodigiosus*. This would seem to show that the organisms must have passed up the alimentary canal into the pharynx and from thence into the trachea and lung. Possibly this is so with regard to rectal injections. But not so, in our opinion, with regard to those introduced into the stomach; it seems pretty well established that here the course is by the intestinal lacteals, the thoracic duct, the vena cava, the right heart, the pulmonary artery and thus to the lung parenchyma.

Calmette and Guérin, in an important paper (*Ann. de l'Inst. Pasteur*, No. 8, 1906), demonstrate the essentially different pathological pictures presented in the primary lesions arising from inhalation and in those arising from intestinal infection. The path in inhalation tuberculosis seems to be from the bronchial and cervical glands and the lymphatics of the vaso-pharynx, the tonsils and the upper respiratory tract, the thoracic duct, the vena cava and then as noted for ingestion tuberculosis.

Thompson, indeed, well points out that the ultimate acceptance of the importance of intestinal infection must rest especially on a study of the paths of absorption. It is this latter mechanism that seems the most essential link in the whole chain. "The thing that we must know intimately, in reaching a clear conception of infection, is the paths the organisms follow after they become lodged in the intestinal tract, and the means of transportation afforded them by which they may arrive at a given destination." We believe the paths by which the organisms reach the lung both after inhalation and after ingestion are as we have outlined.*

Some forms of cough in children are noted by T. J. Mays (*Diet. and Hygien. Gaz.*, Dec., '06). Some children cough very much during the dentition period. The eruption of every tooth brings about a so-called cough on the chest which is often accompanied by a well defined mucous rattle, no doubt due to the large quantity of saliva secreted, which drops from the baby's mouth, soaks the clothing and chills the chest. The cough may also be produced by the reflex influence of the cutting teeth. The treatment consists in covering the chest with large "slavering bibs" lined with oiled silk; and in scarifying the gum over the erupting teeth. "Worm cough" is a belief of the laity, but it seems to have some foundation in experience. Definite instances are given by good authorities. Graves cites

*Of importance are the papers of Buxton and Torrey (*Jour. Med. Research*, July, '06) on Studies in Absorption.

how a tænia in the intestines gave rise to a severe and intractable cough. Matson, in his "Practice of Physic," relates how an infant "lost a chronic cough upon the expulsion of the live larvæ of the common fly." Bremser tells of a child of eleven, afflicted with tænia, who had a troublesome dry cough; this cough was suspended for two months just after a very large portion of the worm had been brought away by anthelmintic medicines; "when the whole of the worm had come away the cough was permanently cured." Some such vermifuge should be given as santonin (gr. II) with calomel (gr. IV) in one dose at bedtime, followed by castor oil or a draught of senna in the morning. For tape worm the best anthelmintic is tannate of pelletierine in 15-20 grain doses given in the evening, and followed by castor oil three or four hours after. *Fatigue cough* is not especially noticed in medical literature. Many who are not particularly subject to any respiratory disease cough when they are tired out by physical or mental work, when depressed by incidental disorders, such as headache, indigestion, injuries, etc., by anorexia, worry, grief, disappointment or sexual or other excesses. The phthisical, moreover, always cough more when exhausted from any cause; such cough is probably due to an excessive waste of nerve force, which reacts upon the lungs—the weakest and most vulnerable organs in such individuals. For such cough rest in bed, nutritious food, fresh air and sunshine, strychnine, hypophosphites, quinine, iron and cod liver oil are indicated.

The Pulse Pressure in Cardiac and Renal Disease. Fellner (*Deut. Archiv. f. Klin. Med.*, Bd. 88, '06) finds that pulse pressure is the difference between the systolic and diastolic blood pressures and corresponds to the true size of the pulse; multiplied by the pulse rate it is within certain limits a measure of the volume of blood flow. Though data obtained from the brachial artery may not correspond with conditions in the aorta and other vessels, they give some information as to the general circulation. Fellner determined systolic and diastolic pressures by means of a broad cuff Riva-Rocci apparatus in various conditions, and points out the importance of knowing blood pressure in certain diseases, as compared with systolic pressure changes, the latter merely measuring vascular tension. Especially is this apparent in chronic nephritis with high systolic pressure. Here there may be a rise in systolic pressure with either an improvement or a deterioration in the symptoms. A corresponding rise in pulse pressure is of good prognostic significance, a fall the reverse, indicating an increased renal insufficiency. Possibly toxic products may here, by peripheral constriction, both raise systolic pressure and lower pulse pressure; consequently a determination of the latter is a great help in prognosis. In aortic insufficiency a high pulse pressure is of diagnostic value, but its variations are of slight prognostic import, because many disturbing factors enter. The particular value of pulse pressure determinations in cardiac cases with broken compensation is in connection with a determination of the value of digitalis; here a rise indicates good effects from the drug, whether systolic pressure rises or falls. In arteriosclerosis the results are very confusing and pulse pressure determinations are of comparatively little value. In general terms the determination of pulse pressure is much more valuable than that of systolic pressure.

MISCELLANY

Tent Life in Alaska is not particularly hard, it is declared, even at 40 degrees below zero.

A very large award for personal injuries was made Edward Kleist, fifty years old, who, besides various fractures, sustained also cerebral injuries, which resulted in hemiplegia and aphasia, in the collision in the Park Avenue Tunnel on December 19, 1905. The award, paid by the New York Central Railroad, was for \$50,000.

Trichina Embryos have been demonstrated by C. Frothingham (*Jour. Med. Research*, Dec., '06) in the sinuses of the mesenteric lymph nodes and in liver sinusoids, from which it would seem the mode of entrance of these parasites is by the lymph stream, their later distribution occurring by the circulating blood. The embryos may break out of the vessels in various organs and cause local destruction of tissue.

Crazy people never act together, declared the superintendent of a large asylum for the insane. "If one inmate attacks an attendant, as sometimes happens, the others would look upon it as no affair of theirs and simply watch it out. The moment we discover two or more inmates working together we would know they were on the road to recovery." It is on this account that there are so few concerted mutinies in insane asylums; so that the number of attendants does not have to be large.

A Wise Suggestion to Medical Writers.—The *Deutsches Archiv. f. klin. Medizin* begs its contributors, in the interests of prompt publication of their works, to make their communications as short as possible. In the interests of the readers, also, it might have been added. The authors are asked never to paste their illustrations upon the MSS., or to draw them on the pages; but to send them upon separate sheets. Satisfactory reproductions are possible only when the originals are entirely correct.

Cigarettes to the number of nearly four and a half billions have been put upon the market in 1906. This is an annual increase of 842 millions, which exceeds by nearly three hundred millions the increase in our cigar industry during the same year. This jump, states the *U. S. Tobacco Journal*, is the more remarkable in the face of the pronounced and unrelenting hostility of half a dozen State Legislatures which have ostracized not only the manufacture but also the handling and consumption of cigarettes within their respective territories.

The Fight Against Cocaine received a decided reinforcement in the addition by the Health Board of New York City of a section to its sanitary code making it a misdemeanor for any person, except under a physician's prescription, to sell at retail any cocaine or salt of cocaine, either alone or in combination with other substances. The former section of the code made requisite only the labeling of the drug as poison to permit of its sale; even this provision was disregarded by many druggists, who sold it in the form of a headache or snuff powder. The new section prohibits this usage.

Overtreatment of syphilis is one of the commonest therapeutic errors of the day, declares Fox (*Therap. Gaz.*); the treatment is often worse than the disease. While mercury and the iodides will often heal ulcerations rapidly, these drugs have no effect upon the remaining scar. Therefore, the results of syphilis are

often not amenable to treatment. The general condition of the patient is of the greatest value in treatment; often the health and the habits of the individual are such as to interfere markedly with the action of the specifics. The dose of mercury has gradually lessened in the last thirty years.

Hysterical Hematemesis of gastric origin, without previous ulceration, is possible, declare Mathieu and Roux; it may occur as follows: There may be a mucous hemorrhage, which is an œsophageal vomiting, tinted red by a small quantity of blood, the fluid looking like currant juice diluted with water. The patient feels a sensation of suffocation and suddenly ejects from 40 to 60 grammes of this fluid. This condition is probably due to a bloody salivation or to a slight œsophageal hemorrhage. Again, and rarely, a hysterical hematemesis may coexist with multiple hemorrhages of nervous origin.

A Great Seaside Park is, we hope, soon to become the property of the metropolis; for this purpose the Board of Estimate has decided to acquire a tract of 350 acres on Rockaway Beach. The idea is by no means new; humanitarian citizens have been advocating such a possession for the city for several years past. This tract will have a frontage of a mile and a third on the Atlantic Ocean, and will be easily accessible by various land routes. Here is one of the finest beaches in the world; no other site within the bounds of Greater New York is comparable with it in attractiveness. We may congratulate ourselves in having for our poor a great seaside park, such as probably no other community in the world can boast.

Bleeding after removal of adrenals is neither so rare nor so insignificant as is generally believed (H. Dupuy, *The Laryngoscope*, Jan., '06). The commonest cause is hæmophilia; other causes are lymphadenoma, exophthalmic goitre and the various forms of anæmia. Bleeding occurs oftener after puberty when fibrosis of the adenoid tissue has taken place. Dupuy has found the ascending pharyngeal artery on the posterior wall of the pharynx; and Schwiegelow had a case which proved fatal from division of the internal carotid, which was pushed upward by an enlarged gland. In treatment Dupuy uses a spray of adrenalin and hydrogen peroxide, and, in severe cases, plugging of the vaso-pharynx through the mouth. Inquiries as to hæmophilia should always be made before the operation.

Dr. Paul Moebius, the author of the famous dictum that "Hysteria is a disease in which morbid ideas rule the body," died recently in Leipzig; he was one of the earliest determined opponents of alcohol in Germany. His specialty was the nervous system, in the treatment of which he laid great stress on the influence of the mind as a curative agent. He was known in literature for his papers on Schopenhauer, Goethe, Rousseau and Nietzsche from the standpoint of the alienist. His treatise on Goethe did not meet with much approval because that poet occupied such an exalted place in the estimation of the German people that description of his mental ailments hurt their feelings. Much acrimony was aroused also by his treatise on the mental inferiority of women and other problems of sex. He always gave fearless expression to his views—an absolute essential in the thoroughgoing scientist.

THE MAJESTY OF OBSTETRICS.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA.

Late Dean and Professor of Obstetrics, Medico-Chirurgical College.

THE majesty of obstetrics is the art and the ability to safely guide into this world the deliveries of God's living image as expressed in the children of men. This is the marvelous ultimate; but the antenatal situations involve many potentials of the human side of the procedure.

A child is to be born. If it is by a woman whom he tenderly loves, there can come no more distressful experience in this world to a sensitive husband than that of having a lovely wife die as the result of child-bearing, of giving birth to, or failing in the struggle to give birth to a babe whom he caused to be generated. The act and the fact through which the gratification of the man's sexual desires terminate in the deplorable tragedy of human passion; the sexual process that craved individual, possibly inconsiderate, even selfish indulgence, has replaced upon many a heart forever the cross of death, instead of the gilded crown of love.

The possibilities of an unsuccessful deliverance at child-birth; the mischance of accidental complications that add dangers to difficulties; the subtle inroads to impaired states of health and normal restoration in the parturient woman—these hang their lurking shadows against the versicolored bow of hope and promise whenever and wherever a child is to be born. There may be practitioners who comfortably train their minds to a come-day, go-day realization in their routine obstetrics; but the cultivated, genuine accoucheur can never do so. From the moment that the fact of a fecundation and conception from sexual embrace has been advisedly brought to his professional attention by the gravid woman, she who must within herself normally develop a living being, or fail to develop a normal child in utero, there is borne upon the consciousness of the natural accoucheur a daily and nightly solicitude, until, after the wearing test of intervening months, "all is over," one way or another, by the process of natural parturition, or by the instrumental intervention of mechanical force, by a relatively normal and cleanly labor, or by a bloody exsanguinement that brings one dangerously close to the glassy eyes of death, or possibly yet by the violence of a desperate drag and disastrous lacerations that, a few hours later, prove to have slain mother and babe.

My personal tuition in the sacred province of obstetrics was devotedly shaped by the most tender, eminently cultured and scholarly instructor, Professor Charles D. Meigs, of Jefferson Medical College, whose fatherly, even motherly, consideration for the woman in travail was ideal in its conservative faithfulness to every instinct of safety. His sign manual, though now fading on aging parchment, was penned on my diploma in March, 1859. His lecture hour meant a tremendous rush of the college classes for advantageous seats, to better catch his impressive and beautiful words, inasmuch as his advancing years, the fiftieth, then, in his procession, had weakened his somewhat effeminate voice. His instructions were so minutely thorough that he made his students of that day the lovers of the science and

the art of obstetrics, with the result that Professor Meigs undoubtedly turned out for the highest service of motherhood an exceptional type of excellent general practice obstetricians. Though now a veteran myself, I revere his memory. It was to his teaching of patience, hopefulness, courage, care and skill that I have owed my consoling success or "luck" of forty-seven years in the safe deliveries of pregnant women. With his adherence to the use of the light-weight, elegantly curved blades of the Davis forceps alone, when instrumental deliverance was absolutely necessary, as taught his large classes, how many dilated uterine necks were thereby spared from injury! How many distended perineums were saved from tear! Of all known styles of obstetric forceps invented, Professor Meigs most unqualifiedly gave precedence of appreciation for the light-bladed, short-handled, the safe in introduction and manipulation, the mother-and-child sparing Davis forceps. He urged every member of his graduating classes to be sure to take along home with him a pair of Davis forceps in preference to all others for comforting results.

Though seldom used, mine have served me splendidly when required. Throughout my long experience I recall but one instance in which the perineum sustained injury when I had used my forceps to complete delivery. I but talk experience: Of the uncounted hundreds of deliveries that I have had in charge there occurred but three cases of lacerated perineum, without instrumental service, that needed the use of sutures to restore the parts. The considerate cautions and means of protection taught by Professor Meigs always seemed present with me in the management of deliveries in child-birth, hence my enduring gratitude. The regime of gigantic instrumental leverage, of heavy long-hook handles fit for elephants, of forcible, continuous drag, unduly promotive of cruel lacerations of wombs and perineums, was thrust into vogue by other, less patient, less skillful, less heart-whole men. These despatch-like, ruder modes of procedure have too often cruelly mutilated the child-bearing sex, and thereby inaugurated the distressful, hapless crusade of modern gynecological cutting operations, which never should have become necessary, and which have made of innocent, unlucky women subjective material for costly surgical exploits.

It is far from my province here to review the general system of obstetrics. But, on the personal experience of an extended practical life there may hinge some evidence of value. I attribute one helpful source of success in obstetric practice to a sensitive regard for the limitations of the channel through which normal child-birth must be achieved. The completeness with which Professor Meigs moulded and carved upon my mind the wisdom of co-operating with the omnipotence of Carus' curve in determining the direction of the descending head and body, from the bony rim up of the upper strait of the pelvis to the exit between the resistance of the pubic arch and the distended perineal floor, and thence continued in said curve line over the external pubic arch toward the abdomen of the woman until all bulk had been extruded into the world, instead of working in straight lines—such wisdom of procedure has spared to many scores of my patients exemption from in-

juries to perineum and vulva when the intensity of danger was very great. But, while managing the head, and, later on, the shoulders, with my right hand, my left was reciprocally supporting the stretched perineum, often assisting thereby also to lift the vertex of the descending head to its possibility of commencing exit from beneath the pubic arch, and thereby reducing the fearful bulge upon the filre of the soft floor, which could not endure further strain without splitting asunder to give space for the completion of the birth.

Nevertheless, in hundreds of cases of severe labor, I have discerned that this stage of the progressing emergency yet held the flesh of the agonized, nearly desperate woman in especial danger, because of the remaining hazard from the partly born head. The elastic labial tissues, the vulvar structures, in turn, are already under such intense stretch and strain that the broader portions of the head, if large and relatively firm, cannot be pushed through the small outlet of soft parts with safety to the latter, without prompt and skillful assistance. In the sublime stress of such moments, though Professor Meigs had passed from life soon after my graduation, his urgent, solicitous voice always then called back to my attention: "Unbutton the head! Unbutton the head! Before the next throe of the labor, gently slide backward to the mother the tense labial band on one side—slide it over the convexity of the advanced head! Next slide backward the stretched labial band the same way on the other side! Release the resistance of both labia from danger before the full bulk of the propelled head tears the labial and vulvar tissues!" And how gladly have I, while yet protecting the perineum and holding the half-emerged vertex to it advanced position from beneath the pubic arch; with co-operating fingers of my right hand I coaxed the distended labia backward, first on one side, then on the other, of the advancing head, even holding back the head itself till released from the grasp of the endangered labia, that the delivery might be completed without tear of the woman's soft and sensitive parts.

To my temperament of sentiment toward womanhood, it seems a deplorable calamity when woman's sexual comfort and enjoyment are impaired or shattered by the accidents of careless delivery at childbirth. For we must, in justice to the real province of obstetric art, never forget that any and all injury that subsequently dethrones the comfort and pleasure of the copulating function physically and mentally bears severely against abiding contentment and happiness in conjugal relations; and, too often, chills even to estrangement and divorce, the endearments of marriage relations. Hence, in delivering the parturient woman, a reasonable delay and solicitous caution are of tenfold more importance, under anything near normal conditions, than is hasty or careless or blundering procedure. The man who habitually feels in a push of hurry—cut short as possible—get through, and be free for his rendezvous or his club, may *do* obstetrics, but he is never an accoucheur. He may value the enciente woman as a convenient medium of routine business; he does not lay upon his soul the exalted seriousness and values of her physiological and maternal functions.

Another feature of obstetrical procedure in my own experience, one that has afforded to myself and to the parturient woman many a winning and grateful success, has been my preference and management of what is designated "decubitus," or the "lying-in" posture of the patient during the most absorbent part of labor. "The position that a man naturally assumes when drawing on his top boots," was an illustrative demonstration by Professor Meigs to exhibit the importance of advantageous direction of the expulsive forces, and of the practically shortened channel through which the unborn child must naturally reach the outer world. This did not imply that the woman must be early put to bed, and there to be kept lying on her left side with her knees drawn up, as many teach and believe. It did mean, that in any attitude, in order to make the uterine contractions as effective as possible for advancement, the upper and the lower gates or straits should in effect stand in line to each other for the better descent of the child; hence the propriety of having the woman's knees drawn upward. Women have been delivered in various positions at childbirth. But position may either hasten or delay the progress of labor after the first or dilating stage has accomplished its essentials of preparation. I once attended a case of labor where the woman insisted on keeping on the knee-chest position, because, as she affirmed, she could always "bear down" best that way. Of course, I allowed her the prestige of her belief, rather than disconcert her mental energies by opposition. But for an unnecessarily long time the head would glide backward faster than forward, and, when at last expelled, though the avenues of exit were easy, her babe proved to be a relatively little thing, which might have been born in one-third less time with greater safety, if I could have had the woman turn upon her back and get down to positive effort.

About fifteen years ago I was hurried across the street to an emergency case of labor. It was a tidy little young married woman with her first child. The doctor engaged and sent for too long delayed his arrival. I found the situation acutely intense. With every recurring pain in rapid succession the sufferer would flip over upon her knees, with nearly futile result. The expulsive forces of her uterine contractions could not sufficiently overcome the backward gravity of the hanging abdomen. I could get her down on her left side after her dissipated pain, hoping to next time afford her more aid; but with the next pain she would bound over again upon her knees to relieve it, declaring that was the only way she could endure the suffering, or she must die! The head was quite ready for exit, but her disadvantageous pose seemed to completely defeat the needed result. I assured her that she was certain to be delivered; that I could deliver her promptly, even upon her knees, but would have to apply my handy Davis forceps for the purpose.

"Anything, doctor, anything to end this misery before I die!" she moaned.

I think the desperate idea of instruments redoubled her energies. While I was preparing my forceps for application she exclaimed: "Oh, doctor, come!" and, forcing her down to her side, in five minutes her babe was born without instruments. The child

was not out of proportion to the pelvic capacity of the little mother, but its deliverance was most undoubtedly much delayed by her shrinking attitude.

Some years ago I was hurried to a case of labor where the woman had continued walking the floor, with the usual pauses to cling to the footboard of the bed during a pain, hoping thus to keep up until the family doctor would get there. Experiencing what she thought was a need to empty the bladder, she sat down upon an empty slop jar at hand. Her bent and squatted position enabled an immediate pain to finish the delivery. I found her fastened upon the jar, because the delivered babe was at the bottom of the jar, gasping for breath. Lifting the infant with both my hands to hold it close by its mother's parts, I had the husband carry the patient to her bed, where I tied and cut the cord, delivered the placenta, and had both child and mother dressed in comfortable form before the arrival of the doctor they were waiting for. Yes, the bent position and the aid of gravity had enabled one forceful contraction to propel the child into the dangers of the slop jar. Suppose that jar had been half full of fluid? For the alarmed mother had held to her seat while her husband had run to fetch me to the rescue. After my removal of the placenta in this emergency, I discerned that a large protuberance remained in the womb. Naturally, I hoped it meant that presently there would be forthcoming a twin birth. Of course, since the family physician was then on hand, at once I retired from the case. No second birth occurring after several hours, it was then concluded that a tumor of some sort inhabited the womb. Unwisely, as I thought, an operation for removal of the tumor was decided on next day, and performed. In a few hours afterward the woman died, without having been allowed any chance to recruit physical equilibrium from the ordeal of having carried a developing child in her overcrowded womb, also from the shock of giving her babe involuntary birth into a slop jar, without the protection of even a nurse at hand.

Position and fixedness, that do not dispel or squander fruitlessly the wearing energies of the woman in labor, are, during the expulsive stage, of superb moment. My favorite plan of management in general cases materialized from a close analysis of conditions and results; but does not include ease for the attending doctor who would lazily allow the intensely suffering woman to struggle the best that she could devoid of his real professional assistance. I could never allow a woman in hard travail to toss and moan away the time, when I knew co-operative assistance on my part would hold her courage and hopes to glad relief and the exalted endearments of receiving her offspring timely and safely to her loving arms. I have, therefore, very frequently been so sore and exhausted after particularly tedious cases of labor that it required several days for my own recovery. In the earlier stage, while the physiological process of preparatory softening and dilatations was in progress, I never desired the parturient woman to weary herself with the bed, except to lie down briefly for my purpose of noting per vaginam and otherwise the local situation and signs of progress. She was encouraged to protect her reserve forces by moving about on foot, if agreeable to her; to sit in her con-

venient rocker near at hand; to engage in respites of cheerful conversation between interrupting pains, while my own guardful presence and observation were alertly following every phase and signification of the woman's expression. When I found the os uteri sufficiently dilated for positive business, when the grasp of the woman's hand was of the nature of tenesmic pull, instead of a transient squeeze, she was then carefully kept in bed.

It has been many years since I put much trust in the doctrine that an elastic substance of fluid nature was an ideal dilator in the process of most deliveries. The actual head, the flesh of the buttocks presentation, were more effective. Hence, when I found a pouch of the bag of waters projected into the orifice of the partly dilated cervix uteri, instead of the substance of the child, if there was especial largeness of abdominal size indicating excess of waters, and the progress of labor meanwhile slow, I never hesitated to puncture or open with my forefinger nail the elastic sac, in order that the distending waters might drain off through the vagina, and thus allow the uterine muscles to engage directly with the body to be brought downward and ejected. Even if I could scarcely detect any protrusion of the bag of waters in front of the head, but the head approached again and again without apparent gain, I notched my finger-nail to scratch an opening through the restraining sac at its presenting segment, that the head or other part might pass forward through the opening without unnecessary detention, and the labor proceed to its effective business. With the emphasis, then, of improved expulsion, came the time to remind the patient to hold firmly to the pressure of her pain or "bear down." It has been seldom that I resorted to that parrot-repeat, "Bear down!" Nothing seems so empty of satisfaction to a woman in travail as to exhort her to "bear down" on a grinding pain that has no quality of expulsiveness. I repeat, nothing tires out a striving woman so pathetically as, from beginning to end, to constantly din into her ears the stereotyped granny shillalah: "Bear down! Bear down!" just as if the child can be born only because the suffering woman must somehow bear down—till, at last, nearly collapsed with exhaustion, she helplessly moans: "I'm all done out; I can't bear down any more!"

When I have come to such a patient, I frankly say to her: "Now, please don't try to bear down any more. Your baby will be born presently; give it time. Try to take a rest. Have some water, or a sip of wine to refresh yourself, and just rest." That woman already realizes the difference between an accoucheur and the officious granny nurse or good-hearted neighbor. The wearied patient may (God bless her) drop off into a light doze, when she is awakened by a returning pain. Immensely do I prefer my own method of winning the mental grasp and co-operation of my toiling patient. I say to her confidently: "You need not to tire yourself out trying to bear down. Here now comes another contraction of your womb to help deliver your babe for you. This is the right kind. I will take care of you while the pressure is on. Just you hold quietly and firmly to it; close your lips, please, and don't flinch from the pressure till it goes again—that's it; that's

beautiful; that's helping now; that's the safe way; that is the right kind—now rest again till next time!" Depend upon it, that woman's faith will so reinforce her courage that it will bring to herself and to the doctor a gladsome victory.

But what about position? When expulsive contractions set in, the patient wants to seize the helping hand of a bystander. The pull is usually offward, and tends to dispel or suspend the downward traction of the uterine muscles. The pain has lost the intrinsic value of its purpose. If the patient is on her left side, I instruct the nurse or other attendant to seat herself on the opposite side of the bed to me, support the patient's left bended knee, and when pain comes on, hold the patient's left hand in downward direction toward that supported knee, to give concentrated fixedness to the line of propulsion. Or, if turned upon her back, I instruct the nurse in attendance to support the left knee and hold the patient's left hand in the same manner, while I support the right knee, frequently by holding on to a towel spread over the knee, to spare the drag of the patient's grasp on my left hand, while my right hand remains free for vaginal manipulations as needed. A knot is put in the end of the towel for the woman to grasp and cling by while her stress of pain is on her. But often affairs remain in harassing tardiness. Pulling on hands and towel and fastened sheet for steadfastness, tossing from side to side from weariness, seem dissipations of passing time. Then is when the doctor must make up for delay and loss of nerve tone. Too often the attending physician then resorts to anæsthetic and forceps, with their regrettable risk of traumatic injuries and the sequelæ. But if there remain a single chance of normal delivery, it has been my habit to put myself into the breach of trial.

The patient is placed squarely upon her back. By external manipulation the child-laden uterus is balanced from either side to plumb or median line of the abdomen, that its contents may be in true accord with the pelvic straits, and all the advantages of normal gravity secured to the patient's efforts. I am on the right side of the woman. I lift her right leg till the bottom of her foot rests flat upon the bed. I place against her upraised knee my left chest and shoulder to firmly hold it braced during every expulsive effort. My right hand remains free to manipulate the progress of the descending presentation per vaginam. With my left hand I take firmly the willing grasp of the right hand of the patient. In this fixed, firm, steadied position her confidence is magnified into self-centered control; the distractions of contortions are prevented; every contraction of the womb upon its contents, together with the set forces of abdominal muscles and diaphragm are utilized to her minutest advantage; and hundreds of hard labors have thus been brought past all detentions to a successful, safe and happy termination. When the supreme moment of expulsion is near, I release my left hand from the woman's grasp, direct her to grab the mattress instead, mount the bed, with my shoulder yet in service to hold her steady, utilize my left hand to protection and management of perineum, as already described, while my right hand is caring for the strained, distended labia, and in readiness to assist

to extrude the child, drawing by head and by shoulders in continued direction of the Carus curve, till all is accomplished and everybody happy.

"Oh, how good the doctor was to me; he knows exactly how to hold a suffering woman in labor till he can deliver her!" has again and again been exclaimed by the relieved mother when it was over. Your fee is small as compared with the great-hearted gratitude!

In view of these earnest, serious situations, the question often occurs, Why do young women almost universally continue to venture the hardships and risks of voluntary, even eager marriage and subsequent pregnancies? I have put the problem frequently, frankly, as a professional consultant to whom women naturally looked for confidence, put the problem to young, single women who contemplated wedlock, whether or not they were calmly and spontaneously willing to face the painful experiences and hardships, such as they had knowledge of what other women have gone through—all for the sake of gratifying a man's desire? Such a practical question brings the female face to face with the actual facts of the ultimate meaning of the pleasantries of courtship between the sexes. Such question may really awaken the first deep thought of the quite young woman. It may compel her mind to revert to the mysteries of her own father's and mother's relations, and to scan along the routine of her home life, of a sister's or neighbor's heart destiny. "Know thyself!" I do not believe in turning young people of this age through the alluring wicket gate of brief and light-hearted romance into the boggy morland of reality beyond without at least a little lantern to show the path at night-time. What are the usual replies like? In substance, these young explorers in sexual reserves respond that they hope to better themselves; that they would have somebody who would work for them; that they must expect to share what other women come through, but they hope to escape the hard lot of many others. Thus we discern the woman's magnanimous love, her everlasting hope, her ready consecration to duty and sacrifice, her concession to the creative potency of God's purpose wrought upon earth through sexual attraction, solicitation and consummation. Thus there is perpetuation of pregnancies and new births. "Real love for woman is the holy sublimity of human appreciation!" I once said to my preceptor of ripe years in the romantic days of my early studentship. With more blunt sense than poetry, he replied: "But the sexual organization is at the bottom of it all."

When the problem of human procreation is calmly studied out to its physiological analysis, we must concede that the desire for copulation is the most dominant passion of a man's life. He pursues a woman to that ultimate result, because it is a woman that he most desires. And woman would be wooed! She either reciprocates man's personal interest in her, or she passively yields to his solicitations—and all the rest follows because nature reigns and will not desert her ordained throne. All else in human life bows to the sexual behest, and toil and pain and care and sacrifice yield obeisance to the role of contingent duty. It is therefore the sexual endowment implanted with life itself, as expressed in human

existence, that peoples and propels the world. But woman bears the greater share of sacrifice, of endurance and suffering. For the last half century woman has made herself conspicuous in endeavor to avert her subjective relation to man. She has won many advances in the self-support and money-gaining spheres of personal independence. But her position is forced against nature; her bravery is like the artificial glamour of a burnished shield. She possesses the grain that bears the attrition, but her molding remains receptive beneath. Her instincts daily revolt against her call to mannish occupations. She would withal prefer to be a natural woman yet, if love and comfort and protection and justice would hourly gown her soul in their exalting livery.

But it is man, rather than woman, who most presumes, who falls away from the monitions of grace, who cheapens the values of love's royal confidence, who discounts the abidance of faith, who teaches the discontents of heart and spirit in sexual relations. Rather than this, man's love and reason should be and remain the strong fortress of suffering woman, who first trusts and then suffers for him. "But I am willing to bear all this—for my husband's sake!" was the broken utterance of a woman of superior mental refinement amid the throes of a grinding pain during her fourth confinement, at which I presided as accoucheur. There gleamed the sublimity of true and faithful wifehood.

But, anent this great problem, Mrs. Gertrude Atherton, the authoress, in a recent published deliverance attests her own matured conclusions: "There is no question that some women—and this despite abounding health, in cases even beauty—have no vocation for matrimony, domesticity, motherhood. What made the world awry for women during so many centuries was the dogma that if they obey the early mating instinct they could not stray far from the best entrance to the impenetrable future. I think that every woman, before marrying, should take time to ask herself seriously, *not does she irrevocably love the man*, but if she wants home, children, the companionship and protection of a husband *more* than she wants personal liberty. I fancy that those in whom the doubt lurks *are* asking themselves this question before it is too late, *more and more—and the vast majority that do not ask it, will keep the race going.*" The italics are my own for emphasis.

Sight Tests for German Railroad Men are required when they first enter the service; again when they enter on another branch of work which makes a greater demand on the eyesight; and again when appointed to any official position. Besides this, the eyesight must be tested anew every five years; when the men are also to be examined for ocular and constitutional affections; and when there are injuries to the head. In certain branches of the service the employees must wear glasses to bring their vision to the proper standard; but artificial aids are not permitted to switchmen, bridge tenders, signal men, locomotive engineers, stokers, conductors, or dispatchers. By means of such stringent rules as these many accidents are no doubt prevented; possibly a like system would obviate a few such as are now so dreadful and so frequent among us.

INFLUENZA ("GRIP"); ITS PREVENTION AND NATURAL TREATMENT;

and, Incidentally, a Study in Clothing.

BY CHARLES E. PAGE, M.D., BOSTON.

MAN is by nature a naked animal.—*Sartor Resartus*.

To the minds of most medical men the treatment herein formulated for influenza might seem too much on the order of "old woman's way," and altogether too simple for use in their practice; and the writer is free to admit that it is open to the objection of being "bad business" for a physician to introduce so simple and educational a treatment in his families, since it would tend to render them more self-helpful and hence less likely to call him in in case of subsequent attacks. The prompt application of "what to do before the doctor arrives" would often, providing, of course, the advice be right, prevent his arrival altogether, or, at any rate, make but few visits necessary. It would at all events work very nicely in his own family!

From an article on this subject in the *Medical Record* for December 22, 1906, I take pleasure in quoting Dr. Nammack:

"The average patient will expect to swallow drugs, and the atrocious pains sometimes present will suggest the use of analgesic antipyretics. It is my personal conviction that drugs of this class contributed more to the death rate during 1889-90 than did Pfeiffer's bacillus. At the present, their use is not so general, but they still occupy too prominent a place in the lay mind. . . . Another drug largely used by self-prescribers for this affection is quinine. There is not the slightest evidence that quinine in any dosage favorably modifies the course of an attack or shortens its duration."

In a very wide experience in the treatment of influenza during the past quarter of a century, I have for some years maintained that there is no drug in existence that "favorably modifies the course of the attack or shortens its duration," or is even at all useful during convalescence. It may transpire that by our propensity for over-drugging, we have been playing into the hands of our Christian Science brethren.

There is no disease that yields more readily or better proves the efficiency of hydrotherapy and therapeutic fasting than influenza. It is chiefly a disease arising from smothering the skin in excessive clothing rather than from any specific infection, in proof of which I offer the well-known fact that practically all of our epidemics of influenza occur in mid-winter, during a somewhat protracted period of unseasonably warm weather. Men who put on their winter flannels early and swelter in them during an extended period of almost summer weather, are the chief victims of "grip." Men, as we know, are more subject to the disease than are women, the obvious reason of which is indicated in the foregoing reference to the clothing. Men are underflannelled and overcoated as women very rarely are. When a woman has the disease it will usually be found that she is the owner of a nice sealskin coat, and possibly a union suit of flannel, and is otherwise a victim of the coddling habit. In general, however, women wear peek-a-boo waists, even on the street, at times when their brothers and husbands are wearing flannels, heavy vest and coat, if not an overcoat.

Now, assuming that the foregoing fairly represents

the real facts of the case, the rationality of the simple treatment employed by me, and which I shall briefly describe, might be admitted, since its aim is to counteract the influence of the unsanitary practice of smothering the skin.

My first procedure when called in a case of influenza is to order a hot foot bath to the point of profuse perspiration, and then a thoroughgoing, all-over sponge bath, with a very mild mixture of acetic acid and luke warm water (about 1 to 24) to stimulate the skin to lively action, so to say; then, if the patient is not a fit subject for the "Winternitz treatment" (to which I will refer more specifically farther on), or if sick enough to be in bed, it is from that time on a question of the freest ventilation of the sick-room and therapeutic fasting for the sick man, who is allowed all the fresh water he wants in addition to a half teacupful of moderately hot water, every hour during the daytime. This simple treatment, if taken at the very onset of any attack, such as would under the prevailing practice of forced feeding and drugging, result in a long, painful, and possibly fatal illness, would rather speedily abort the disease, put the patient convalescent and ready to be about his business within a week or ten days. If called in at a later stage, when the patient is critically sick, perhaps suffering from bronchitis, and possibly threatened with pneumonia, then, in that case, in addition to the foregoing, I employ the treatment described in my article on the "Curative Treatment of Pneumonia," in the *Medical Record* for December 23, 1905, and which, in brief, is the use of the two-ply linen (wrung tightly from cold water) cold compress over the entire chest in front, with two folds of dry towel outside, the damp folds to be freshened as often as they become hot; with hot water drinking and therapeutic fasting as a matter of course. In severe cases of bronchitis and in critical ones of lung engorgement, the cold compress may require freshening as often as every five or ten minutes at first, the intervals lengthening as the relaxed walls of the blood-vessels become braced and these vessels approach normal calibre permitting the air-vessels to open up and the patient's breathing to become consequently deeper and easier, when the changes may not need to be made oftener than every half hour or hour, until convalescence is so completely established as to render local cooling no longer demanded. Even when the patient is well out of danger, it is very easy to provoke a relapse by premature or overfeeding; better a day or two late than a day too early in resuming the use of food. So long as the system is engaged in fighting any critical acute disease, the digestion and assimilation of other food than water and fresh air is simply impossible. Hence food is ingested into the stomach "pure and simple putrescence, and instead of 'keeping up the strength' it keeps up the weakness; it is feeding for pyrexia and all manner of 'complications,' and hence to delay if not prevent recovery. When Dr. Nammack declares his conviction that analgesic antipyretic drugs 'contribute more to the death rate than Pfeiffer's bacillus,' it is only another way of saying that the prevailing treatment is worse than the disease, whether we regard the Pfeiffer bacillus as its cause or, as I maintain, a natural aid in its cure.

In my allusion to the "Winternitz treatment" for influenza, I had in mind a contribution to the literature

of this subject by the eminent Professor Winternitz, M.D., of Germany. It seems that two members of his family had suffered from severe sickness with the disease, and the good doctor himself found an attack coming on from "too close confinement indoors in attendance upon them." It was a stormy night, the snow was falling fast, and the weather bitter cold; but he donned his stout boots and top coat and plunged out into the darkness and tramped until in the course of an hour or so he returned in a profuse perspiration, went to his room, stripped, and gave himself a thorough all-over toweling and tumbled into bed, to wake in the morning after a fine sleep, safely free from the grip!

Who ever knew of an attack of any acute disease that was not ushered in by "a cold"? A cold! And what is it, or what causes it? Certainly neither wet nor cold, nor any such exposure; else Peary, as near the North Pole as he could get—near enough to freeze off seven of his ten toes—would have contracted the disease directly; but we have Mrs. Peary's record to the effect that none of them up there ever had any "colds" so long as they were "half frozen"; but, on reaching any cosy shelter, and remaining indoors any length of time, with provisions plenty, "we all had colds," she remarks!

"I owe you a debt of gratitude for your colds theory," wrote a prominent New York banker who had printed a large edition of my article in the January, 1884, issue of the *Popular Science Monthly* to distribute among his friends "as a missionary tract," as he put it, the title of the paper being, "Catching Cold." The theory, in brief, is that there is practically no such thing; that the term is a complete misnomer, as much as it would be to call a mouse an elephant, or a cooking range a piano. But what would we, as a profession, do without our chief scapegoat when our patients, after apparent improvement, from forced feeding and drug stimulation, suffer a relapse? What would our skin-sweltered, stomach-bulldozed, coddled and over "careful" fellow citizens do if they couldn't account for their various physical disturbances in the regular way?

"Should the right theory ever be discovered, it will solve many riddles," wrote Emerson. "How is it, doctor, that I always get a severe cold every fall when I put on my winter flannels?" asked a consultant, a man of 60 years. My explanation appealed to his common sense, and instead of changing his flannels that fall, he shed his summer underwear, and from that time on till he died, past 80, he wore no inner suit at all. Thirty-odd years ago the present writer seemed doomed to follow his mother and his younger brother and sister into a consumptive's grave. He was wearing the heaviest of all-wool flannels, and it was on one February morning in Maine that he dressed without them. Not a fibre of underwear has he ever worn since that blessed day, and now, at 67, he is regarded by experts (life insurance examiners, for example) as a phenomenally healthy and robust man, and he knows himself to be that.

An uncle and two brothers of mine went to Australia in 1852, all well supplied with woolen underwear as a safeguard against "climatic fever!" But they all had it, and my elder brother died of it before the right remedy was found. My uncle chanced to consult a level-headed old native doctor, who looked him over, and finally advised him to "hedge" on his rum and to-

bacco, and he wound up with, "but if you'll take off and keep off them d—d flannels you'll come out all right!" He took the advice, as did his nephew, also, and although he returned to Maine some years later, he never resumed the use of any sort of underwear. He died at the age of 82 from some kidney disease, after a remarkable record of vigorous health up till the time of his final and rather brief sickness. The other non-flanneled relative, my brother, lived to be 65, dying finally from apoplexy.

Wise old Ben. Franklin never said a wiser thing than when he declared that "colds" resulted neither from cold nor wet, but from causes entirely independent of them. (See his "Essays," p. 216.)

It is my belief that the right understanding of this colds question, and its rational application, would lower the death rate in any community 50 per cent. at least. Its misunderstanding is chiefly responsible for all of our epidemics of grip, pneumonia, scarlet fever, measles, etc. In a sense it is true enough that unseasonably warm weather, such as we have been having thus far, is in a way responsible for the serious conditions confronting us; but it is by no means explained on the ground that the warm weather induces many to be neglectful "of the ordinary precautions against taking cold." Far from that, indeed; for the true reason for the furious crop of "colds" is quite the reverse of that.

The best prophylactic against the disease—for it is in truth a filth disease, and the first stage of all the recognized filth diseases is to *keep cool*. But as most people put on their winter flannels at the first touch of cold weather, or by the calendar, regardless of the weather, and also wear their top coats, "for looks," no matter how hot, sticky and mean they feel in three suits of clothes outdoors, and two suits in, though in warm rooms they would be absolutely comfortable and more wholesomely dressed in a South Sea Islander's girdle—dressed as they are, I am saying, they can't keep cool in warm weather, nor in warm houses, offices, theatres, etc., at any season. Hence it is that they are steadily accumulating foul waste throughout the organism; for under such conditions they cannot even digest the usual amount of food, and that of course means indigestion, fermenting, putrefying food substances, and, consequently, auto-toxemia, true blood-poisoning from the absorption of putrescence from the alimentary tract. Who can imagine a more natural and certain cause of disease, the outcropping of which may take any one of the forms above mentioned, or, indeed, almost any other, as typhoid fever, arthritis, etc., depending upon the individual diathesis.

In a strong editorial some months ago the Boston *Herald* quoted Professor David Starr Jordan of the Leland Stanford, Jr., University, who had studied the conditions in the South Sea Islands, and referred to the results of missionary work there which, aside from much of good produced, had "brought into the lives of our joyous brown wards of the coral beaches two things which are certainly calamitous; these are clothing and, by consequence, pneumonia," which he feared would in time depopulate the islands, as we know has happened to other naked races when on the encroachment of "civilization" they were compelled to wear clothes.

"This is the fate which overtook that once hardy and prolific race, the aborigines of Tasmania, and we have

in their history a most significant object lesson in clothing. Not a soul is left, and history alone tells the tale of the disastrous effects of smothering the skin. The Tasmanians were enabled to withstand most of the effects of civilization; they continued to thrive and multiply in spite of rum, tobacco, wars, and even massacres, and all manner of wrongs at the hands of the invaders; but when finally the encroachment of the English reached the point of compelling the use of clothing they began to decline. The race perished from the face of the earth, pulmonary diseases having been chiefly in evidence."—"Flannel Underwear and Personal Sanitation," by present writer, read before the Section on State Medicine, Meeting of the American Medical Association, Philadelphia, Pa., June 2, 1897.)

Formerly the Japanese jinrikisha men pursued their calling as human draught animals in a state of nudity, as best befitted their tasks, with just enough covering to meet all requirements of a rational modesty. They were handsome to behold, well developed, strong and lithe of limb, and the rains beat upon their shining, oily shoulders and back as harmlessly as on the well preened plumage of the wild duck. But prudish foreigners took offense; sensitive to outside censure, the government issued an edict requiring clothing to be worn. Consequently pneumonia has become terribly fatal among the jinrikisha men. And, I would ask, if just the cotton single suit forced upon these stalwart and robust natives works such fearful mischief, what may we not expect in the way of disease from the strange folly of wearing two entire suits of clothes in warm rooms, and during a prolonged period of almost summer weather, such, for example, as we have been having for several weeks past (January 5, 1907), and which, in fact, has already brought on its natural fruit of "grip," certain to become epidemic unless we are blessed with a cold wave directly. Rationally interpreted, comfort means health, and we might wonder how it comes that men who "know enough to come in when it rains," and who know enough to try and keep warm in cold weather, do not know enough to keep cool in hot weather! Well, we must be draped, surely, since the law and social custom compel that much, and it must be confessed that most people look better in fashionable clothing; but we don't need to daub it on, so to say. We can be fashionably draped without sweltering and smothering the skin to the point of inducing influenza. The skin is a true breathing organ, and while the lungs can, as we know, do a great deal in the way of vicarious atonement, there is a limit beyond which they cannot withstand being overtaxed. The frailer and more delicate the individual, the more essential it is to have the body-skin in free communication with the atmospheric air.

Is it not really our business as physicians to learn these bed-rock truths and to teach them to our clients? This seems to be the view taken by Sir Frederick Treves, physician to King Edward, to judge from his recent address at the University College, Liverpool: "A man may possess all the learning that a well-equipped library may contain," he said, "and all the erudition attentive observation in the wards may bestow, and yet know too little of man himself and the fixed natural laws which govern his existence. . . . Disease is the result of the violation of some of nature's laws, and it is the duty of the physician to find out the law which has been violated, and as a remedy, impress

upon the patient the necessity of mending his conduct, so as to more fully comply with the laws of nature"—that is, of the animal organism.

GENERAL SIGNIFICANCE AND THERAPEUTICS OF CATARRH.

BY C. M. SMITH, M.D., RICHLAND, KANSAS.

THE relative anatomic positions and primary exposure to infection of the mucous linings of the body; their special peculiarities of structure and remarkable functional activity in resisting invasion from without the realm of body cells, and in furnishing vicarious escape for various forms of metabolic debris from within, afford abundant reasons for the various forms of morbid mucous manifestation, and entitle these organic membranes to our special consideration as constituting some very important divisions of the physiological frontier of the human organism.

Furthermore, when we consider their so-called absorptive function, the degree to which they become passively involved as an etiologic factor, and finally the clinical uses of representative portions as symptomatic indices in nearly all unhealthy conditions, we cannot but apprehend the possibility that mucous cell activities are often too lightly taken into account in adapting our therapeutic methods to our supposed knowledge of pathology.

The distribution of mucous involvement often present in slight affections, as for example, that of a common cold, should remind us that as functional gateways for catabolin elimination, the differences in local responsibility between respiratory, alimentary, genito-urinary and even ocular border lines of duty are not, as a rule, so great as might be assumed from a hasty consideration of classical symptoms.

In view of these relations between inner surface and deeper systemic conditions, some causes, besides that of mere local irritation, which, by disturbing or stagnating general metabolism, are also disease-producing in general, might be mentioned as especially tending to overtax and overcome the defensive capacity of mucous follicles. I would give:

(1) That of infectious invasion from without; (2) insufficient or improper bathing, (3) dietary indiscretions and constipation, (4) improper adjustment of clothing, exercise or ventilation to occupation and surrounding atmosphere, and (5) untoward psychic influences impairing nerve function, and from this that of other organic cells, which, in turn, permit toxicity, however mild, to develop within or to impress from without.

The primal physio-pathological process, resulting which the local hyperemia of reinforcement pressure helps to impede follicular and general mucous activity, gives us that burning heat and dryness especially prominent in the early stages of coryza and other local mucous manifestations of deeper systemic disorders. It is when mucous cell function is able to rally from the heat and jam of the occasion in its special locality, and mucous cells to again assert themselves in action, that we have the thin, ropy discharge indicating a stage of true catarrh, uncomplicated by the results of deeper and suppurative action.

Where micro-organisms penetrate the epithelium from without, invade the deeper mucous structures and engage advancing leucocytes from the interior, until walls of pus cells is the result and the resort, the inflammation in those areas becomes suppurative rather than catarrhal, the discharge therefrom mixing with that from functionally sound mucous zones of the neighborhood and presenting the character of muco-purulency.

In accordance with the clinical custom of including the stage, and, in certain localities, continuous condition, indicated by this muco-purulent discharge under the common name "catarrh," we will, in considering our therapeutic way out of this somewhat dark clinical pathology of the situation as a whole, endeavor to properly guard and regard the name, while we treat various phases of the condition as bearing the double relationship of cause and consequence to the general nutritional poverty arising from any concurrent systemic derangement.

The therapeutics of catarrh, as generally understood, has reference chiefly to getting rid of fire and smoke and later on dead and decayed—results of frontier cell engagements along the nasal and nasopharyngeal outposts. In some of the efforts applied locally to restore order and physiological harmony in this region, there are points in special technic beyond my purpose here or my ability anywhere to discuss. That the struggling, poorly nourished cells, in the depth of their foul, acid environment during the muco-purulent condition, need a mild alkaline antiseptic and local nutrient, is an established fact in therapeutics, provided the application be made with sufficient moderation to favor and not dissipate the natural-effort process of restoration.

A comparative susceptibility to local irritation as a cause of recurrent difficulties is particularly noticeable in many persons who have previously undergone special local treatment for their catarrhs; while many others, under equally unfavorable conditions, regain their naso-pharyngeal health and enjoy better immunity against further colds without having had recourse to spray, douche, ointment or insufflation. This reminds us that "meddlesome" help is usually worse than no help, that the laws of growth, repair and normal vigor are universal in their self-application, and a conformity to them becomes as important in rendering local assistance to restorative efforts of the upper respiratory tract as in any other corrective or curative measure. For similar reasons, it would seem that the utmost conservatism consistent with these passages should be practiced in removing fairly opening the way for freedom of function within granular or lymphoid overgrowths or hypertrophies of any kind.

During the stage of true nasal catarrh, characterized by more or less sneezing and watery discharge, thoughts of local applications seldom suggest themselves to either patient or physician. Some advantage has been claimed from irrigation by means of warm, slightly astringent and locally anæsthetic solutions, but a comprehensive estimate of results shows them of very limited benefit, even the excitement and smoke of mucous cell battle being best calmed and cleared away by the gentle, expiratory gusts of reflexed nature and the gentle use of the

handkerchief. This is the rallying stage of mucous activity; local phagocytosis is at its height, and, in a way at least, temporary master of the situation, so far as the disease process and its temporary progress is concerned.

It is at this stage particularly, that the various effects observable from both systematic and indiscriminate use of drugs are very suggestive of the therapeutic requirements in catarrh.

By some series of happenings, haphazard or otherwise, the sulphate of quinine has long been a popular remedy for the early stages of this physio-pathological ailment. Very marked benefits are known to follow its use in many instances, while in many others only intensity of disturbance and complications result. It has been used, moreover, in all stages in almost every conceivable manner of dosage and frequency from the first apparent symptoms of a cold—the nasal smarting which usually accompanies the period of dry hyperemia—to the full establishment of the so-called catarrh.

Summarizing briefly my own clinical observations, together with facts, inferences and opinions gleaned from the reports of others, and leaving out of consideration the factor of malarial infection as a contributing cause, the following tentative conclusions seem warranted regarding the use of quinine in catarrh:

1. Given without preliminary treatment during the dry, hyperemic stage, in doses either large or small, the principal effects are systemic irritation and aggravation of unpleasant symptoms.

2. A few small doses given during this stage, following well-directed treatment to secure favorable alimentary, skin and circulatory conditions, add the effect of a gentle, non-irritant tonic to that of comparative sedation from the preceding measures, resulting finally, in a somewhat milder true and muco-purulent catarrh.

3. The usual effects of single or repeated doses to fifteen grains or more daily during the stage of true catarrh, are a lessened discharge and temporary amelioration of unpleasant symptoms, followed in a few hours by increased headache, backache and general body-ache, and later on an aggravated purulency of the muco-purulent stage.

4. Given in doses of one-half to one grain every hour for three to five hours, then every three or four hours for a day or two during the true-catarrh stage, the almost invariable effects are a considerably lessened discharge and quite marked relief generally, followed in due time, by a muco-purulent stage so short and mild as to cause but little, if any annoyance.

5. Its usefulness during the condition of muco-purulency seems limited to a few small doses at times when mucous secretion is especially free and predominant. These clinical data remind us of:

1. The adaptation of quinine to free mucous secretion as a mere symptomatic indication for its use.

2. The tendency of this secretory activity, when uncontrolled, to progressively pathologic overactivity with unduly dilated capillaries, porosity of capillary walls and a corresponding over-rush of leucocytes to unnecessary exposure, destruction and consequent over-drain upon the resistant resources of the organism.

3. The supposed interaction of the organism to or with this drug alkaloid, known to result in reduced calibre of capillaries distributed over inflamed areas, fol-

lowed, when thus influenced to a proper degree, by a better regulated, hence a more effective, leucocytosis.

4. The size and frequency of dosage seemingly best adapted to the physiological capacity of the organism to respond to and otherwise appropriate in accordance with pathological requirements and without resultant increase of toxemia or other systemic disturbance.

Any further consideration of quinine in catarrh should include its reliably recognized antiseptic effect, locally, upon morbid intestinal contents, the result of imperfect intestinal digestion. During the first few hours of muco-purulency usually accompanied by marked digestive derangement, I have found one or two grains combined with equal parts of bromide of ammonia and repeated once or twice at about two-hour intervals, to be soon followed by decisive improvement and without any unsatisfactory after effects.

The influence of digestive upon metabolic derangement, and this result as a cause of inflammatory trouble along the upper respiratory tract, altogether furnishes a fine example of the manner in which various mucous membranes are overworked in their complex function of defense, absorption and vicarious elimination.

It is here that dietary indiscretions predispose to "taking cold." It is here also that the popular initial course of calomel and epsom salts often affords temporary relief, while later it seems to have hindered progress to the physiological equipoise of more permanent recovery.

I have frequently noted the first partial relief following the effects of laxative medicines or measures administered for this purpose only. By this means the gross blockade in the alimentary thoroughfare seems harmlessly removed and its surrounding walls of mucous cells left freer to perform their legitimate duties.

This partial relief can now be made more satisfactory and complete by the administration of a properly selected and manipulated mercurial in dosage simply sufficient for complete absorption and physio-therapeutic effect. The biniodide in doses of 1-150 grain every half hour until six doses have been taken, is the salt and method of my choice. The entire quantity, 1-25 grain, should be first thoroughly triturated with 1-2 dram sugar of milk and the taking of each dose followed by several sips of hot water.

Soon following this the pulse softens and becomes steadier, the tongue shows a tendency to clean, vaso-motor appearances of the face become more natural, and lastly, the naso-pharyngeal difficulty lessens in intensity—all symptomizing the fact that metabolism is clearing itself, that healthy nerve impulse and communication are being restored and that interior micro-organisms and organic secretions, physiologically antiseptic, have reached the digestive tract and are helping to restore healthy conditions there.

From quinine now added, in accordance with the preferred method already outlined, we secure its happiest effects and usually the complete restoration of our patients, but there are cases with more serious liver disorder in which the simple mercurial course of physiological medication should be repeated daily to two or three days' treatment, and with it about one-half dram of sodium phosphate in hot water, once daily, before breakfast, instead of the initial laxative.

Another drug which, according to my own experience, is especially useful in certain special conditions, is the

tincture of aconite. The conditions are the sneezing, then smiling, then crying and fretfulness of a baby with "red eyes," "running nose" and hot skin, though, as yet, healthy stomach digestion—a combination of symptoms often found in these little people affected with coryza at the very beginning of the true-catarrah stage. The first six or eight hours is the doctor's opportunity to "break up a cold," and without giving any drug except the tincture of aconite. But the quality must be good and the quantity small—one or two drops in about twenty teaspoonfuls of water, a teaspoonful half-hourly, and if the baby's bathing, dress, diet, sleep and breathing-air are properly attended to he will almost assuredly recover in less than a day.

The subtle influence of the alkaloid, aconitine, upon the vaso-motor nerves is probably responsible for the restoration to healthy activity of the frontier mucous cells.

Belladonna and atrophine have a place, according to good authority, in these conditions, and their salutary influence is probably due to similar activities—reflex and nutritional—resulting from the absorption of the alkaloid.

The various local catarrhs accompanying and following bronchial, oral, gastric, duodenal, enteric or colonic inflammations or mild functional incompetencies; also those of the eye or genito-urinary organs are best treated in accordance with the principles herein suggested, including such additional measures as specific causes or special functional peculiarities may call for.

Probably no disease so quickly and effectually overpowers mucous cell-function in different cavities and passages of the body, at or near the same time, as influenza of marked specific type. The name "catarrhal fever," so often used to designate this disease, is certainly a fitting one.

After carefully estimating manifest results following the various antipyretic, eliminative and tonic treatments recommended for influenza, I am convinced that patients recover more safely and satisfactorily under the sodium phosphate-mercury-quinine regime, as already outlined for repeated use, than from any other generally used method of drug assistance. If marked debility persist as a sequence, nucelin, combined with strychnine-arsenate, iron, lime, phosphorus or the chloride of gold and sodium, in quantities simply sufficient for physiological appropriation by the human organism, should be given for three to five days only. So-called relapses or failures to get along require repetitions of the treatment from the beginning, with more careful attention to diet, exercise and environment.

The advantages, therapeutically, of clearly recognizing the human body as an organism of cell activities, rather than a mechanism of tissue passivities are especially satisfying to the truly practical clinical observer who rightly studies, estimates, appreciates and applies his *materia medica* as a working basis for all available influences that make for recovery.

The waste of infant life, declares Joll (*St. Louis Med. Rev.*, Mar. 16, '07), is due to: improper feeding; unsanitary surroundings; ignorance on the part of parents and immorality.

PUERPERAL FEVER.

BY WM. WORMLEY, M.D.

IN a search through the records of the Health Department of New York City, Lusk found that from 1868 to 1875, inclusive, the total number of deaths for nine years was 248,533. Of these 3,342 were from diseases complicating pregnancy, from the accidents of childbearing, or from diseases of the puerperal state; or, in other words, 1 in 75 of all the deaths occurring during that period was the result of the performance of a physiological function. The deaths from miscarriage, from shock, from prolonged labor, from instrumental delivery, from convulsions, from hæmorrhage, from rupture of the uterus, and from extra uterine pregnancy, and deaths from eruptive fevers, from phthisis, and from inflammatory non-puerperal affections complicating childbirth, made a total of 1,395, or about 42 per cent. of the entire number. The remaining 1,947 cases, variously reported as puerperal fever, puerperal peritonitis, metro-peritonitis, phlebitis, phlegmasia dolens, pyæmia, and septicæmia, represent the very serious sacrifice of life resulting from inflammatory processes starting in the generative apparatus. Puerperal fever is the cause of nearly one one hundred and twenty-seventh of all the deaths occurring in New York City. The total number of deaths to the entire number of confinements was at least in the proportion of 1 to 85, or, from puerperal fever alone, in the proportion of 1 to 146. Garrigues examined the records of the various city institutions during the period in question, and from them estimated the number of births which took place in hospitals at 10,572, while the recorded deaths were 420. Deducting these from the totals given above, the general death-rate in civil practice from puerperal causes in New York City was in the proportion of 1 to 94. Max Boehr, in his famous statistics, estimates that one-thirtieth of all married women in Prussia die in childbed, while the puerperal fever commission appointed by the Berlin Society of Obstetrics and Gynecology arrived at the conclusion that from 10 to 15 per cent. of the deaths occurring in women during the period of sexual activity were due to "childbed fever," and that this disease destroyed nearly as many lives as smallpox or cholera. But puerperal fever differs from either smallpox or cholera in that the latter presses largely upon the aged and the very young, while the former gathers its victims exclusively from a selected class, viz., from women in adult life, the mothers of families, whose loss, as a rule, is a public and a private calamity. For those who regard statistic with habitual distrust Lusk believes that the foregoing frightful picture is no exaggeration, but is less sombre than the actual truth, and contains a terrible lesson to the family practitioner.

There exists the necessity of routine preventive measures, viz., the employment of antiseptics and careful use of forceps. Delayed labor is one cause of puerperal fever, hence Croom's rule is to allow no multipara to be in the second stage more than three hours, and no primi para longer than four hours. Carey employs the intra-uterine douche whenever the hand or instrument has been introduced into the uterine cavity; creolin, 2 per cent.; carbolic acid, 5 per cent.; thymol, 1 in 1,000; or corrosive sublimate, 1 in 2,000, may be used, and a douche of distilled or boiled water should follow the antiseptic. Scott regards the ordinary douche as

inadequate, so he opens up the vagina with a trivalve speculum and carefully cleanses the whole tract with lysol solution, 1 to 100, and then swabs out the uterus with cotton wool repeatedly dipped into a 15-volume hydrogen peroxide solution, ending with an irrigation of corrosive sublimate, 1 to 5,000, at 110° F. Cervical and perineal lacerations, if present, should be repaired and kept as far as possible aseptic. Carey and Scott differ as to their recommendations of curettage, the latter discouraging its adoption entirely, but Carey enunciates the following views: Daily records of the temperature of confinement cases should be taken, and upon the first rise of temperature a vaginal douche should be given; then, if the temperature does not fall speedily, the douche must be made intra-uterine. If no improvement occurs in twenty-four hours, Carey cures, irrigates, and applies tincture of iodine to the cavity of the uterus. If these measures fail and peritonitis develops, perform an exploratory incision; and if there is no other evident source of infection, remove the uterus, while the free exhibition of stimulants with iron quinia, and strychnia must be rigidly enforced. Free purgation must be speedily induced upon the first indication of peritoneal inflammation. But no reliance should be placed in medication with antipyrin, salol, or any other antipyretic or antiseptic drug, when it is possible to locate and mechanically remove the seat of poison. Pratt reports that he has applied pure undiluted carbolic acid to the uterine cavity with good results in two cases. Where the case has gone on to suppurative peritonitis, abdominal section and douching of the peritoneal cavity with boric acid solution are indicated; the swabbing out of the uterus with carbolic acid may be carried out after the douching. If any sanitary defect be discovered in the house, the patient should be at once removed from it; numerous cases have been reported of immediate improvement and ultimate recovery under such circumstances.

Spiegelberger's classification is most excellent, for it keeps in mind the principal points to which inquiry should be directed in estimating the significance of the febrile conditions of childbed: 1. Inflammation of the genital mucous membrane—endocolpitis and endometritis. (a) Superficial. (b) Ulcerative (diphtheritic). 2. Inflammation of the uterine parenchyma, and of the subserous and pelvic cellular tissue. (a) Exudation circumscribed. (b) Phlebotomous, diffused; with lymphangitis and pyæmia (lymphatic form of peritonitis). 3. Inflammation of the peritoneum covering the uterus and its appendages—pelvic peritonitis and diffused peritonitis. 4. Phlebitis uterina and para-uterina, with formation of thrombi, embolism, and pyæmia. 5. Pure septicæmia—putrid absorption. In the superficial, catarrhal inflammation the mucous membrane of the vagina is swollen and hyperæmic the papillæ are enlarged, and the discharge profuse; in the vaginal portion of the cervix the labia uterina are oedematous and covered with granulations which bleed at the slightest touch; in the cavity of the body there are increased transudation of serum and abundant pus formation. The deep structures of the uterus are usually not affected. Sometimes the inflammation extends to the tubes—salpingitis—or, passing outward through the fibrinated extremities, it may spread over the adjacent peritoneum. The small wounds at the vaginal orifice are at times converted into ulcers with tumefied borders. These so-

called puerperal ulcers are covered with a greenish-yellow layer, being associated usually with oedematous swelling of the labia. Under favorable sanitary conditions the deposit, which consists in the main of pus cells, clear away, and the surface heals by granulation. The ulcerative form of inflammation is rare outside of crowded hospitals, while in ulcerative endometritis, and even in the extreme catarrhal form, the parenchyma of the uterus likewise becomes involved. The changes which are designated under the term "metritis" consist of oedematous infiltration of the tissues; as a result the organ contracts imperfectly and becomes soft and flabby, so that sometimes, upon post-mortem examination, it shows the imprint of the intestines. In diphtheritic endometritis the gangrenous process may attack the muscular tissue, and give rise to losses of muscular substance—a condition known as "necrotic endometritis," or putrescence of the uterus. Inflammatory changes are rarely lacking in the intermuscular connective tissue, which exhibits in place serous or gelatinous infiltration, with afterward pus formation and with here and there small abscesses; the sero-purulent infiltration of the connective tissue is specially marked beneath the peritoneal covering of the uterus either behind or along the sides at the attachment of the broad ligaments. The lymphatics, which are barely perceptible to the naked eye ordinarily, are sometimes enlarged to the size of quills, and are characterized by varicose dilatations occurring singly or presenting a beaded arrangement. In the uterus the dilated vessels are liable to be mistaken for small abscesses, while the puslike substance contained in the lymphatics is composed of pus cells and of micrococci. From the cellular tissue surrounding the vagina, or that beneath the peritoneal covering of the uterus, the inflammation may spread by contiguity of tissue between the folds of the broad ligament, and thence pass upward to the iliac fossæ. Usually the process is unilateral. After the inflammation has crossed the linea terminalis it may take a forward direction above the sheath of the ilio-psoas muscle to Poupart's ligament, or it may creep upward, following the course, according to the side affected, of the ascending or descending colon, to the region of the kidney. Rarely does the inflammation of the cellular tissue travel around the bladder to the front. In such cases it pursues its course between the walls of the bladder and the uterus, and along the round ligament to the inguinal canal. The course of the inflammation follows prearranged pathways in the connective tissue, thus Konig and Schlesinger have shown that when air, water, or liquefied glue is forced into the cellular tissue between the broad ligaments the injected mass has a tendency to invade the iliac fossæ. In Schlesinger's experiments, if the canula of the syringe was inserted into the anterior layer of the broad ligament, the glue spread between folds to the abdominal end of the Fallopian tube; thence, following the track of the vessels, it passed to the linea terminalis; and finally mounted upward along the colon or swept forward to Poupart's ligament until stopped at the outer border of the round ligament. If the injection was made to the side of the cervix through the posterior layer at the junction of the cervix and the body, the posterior layer gradually bulged out, the peritoneum was lifted from the side wall of the pelvis, and the glue passed beyond the vessels to reach

the iliac fossa. Should the injection be made to the side of the cervix through the anterior layer, the glue passed between the bladder and the uterus, and forward along the round ligament to the inguinal canal, while another portion of the fluid passed between the layers of the broad ligament, and reached the peritoneal covering of the side walls behind the round ligament. The term "parametritis," introduced by Virchow, is, properly speaking, limited to inflammation of the connective tissue immediately adjacent to the uterus, the older one of pelvic cellulitis furnishing a more comprehensive designation for cases where, as a consequence of a progressive advance from the point of departure in the genital canal, the remoter regions have likewise been invaded. Connective-tissue inflammation presents, as the first essential characteristic, an acute œdema, the fluid which fills the gaps and interspaces consisting of transuded serum rendered opaque by the presence of pus-cells, or possessing a gelatinous character; in the mild, uncomplicated cases, the œdema disappears rapidly. Where the cell collections are of moderate extent, the entire process may vanish without leaving a trace of its existence. Should the cell elements be present in great abundance they, as a rule, first undergo fatty degeneration, and, after the absorption of the fluid portion, form a hard tumor composed of a fine granular detritus, which, under favorable circumstances, likewise after a few weeks becomes absorbed.

In the cellulitis resulting from septic infection, especially in cases complicated by diphtheria, the tissues seem as if soaked with dirty serum, and contain scattered yellowish deposits, which soon present, even to the naked eye, the appearance of pus-collections. This sero-purulent œdema is always associated with lymphangitis, the lymphatic vessels possessing varicose dilatations and beaded arrangements similar to those already described in the uterine tissue. Generally, pelvic peritonitis is not attended with much exudation. The latter is situated upon the folds of the peritoneum limiting the cul-de-sac of Douglas, upon the ovaries and upon the broad ligaments; in favorable cases consisting of fibrinous flakes and fluid pus. If the latter is abundant, it may become encysted by the formation of adhesions between the pelvic organs. General peritonitis may follow the extension of a pelvic peritonitis, or from the transport of poison through the lymphatics into the peritoneal sac. In the former case the entire peritoneum is injected, and the contents of the abdominal cavity are loosely bound together by pseudo-membranes, composed of pus and coagulated fibrine; the intestines are at the same time distended and the diaphragm pushed upward. The abdominal cavity is found filled with a thin, stinking, greenish or brownish fluid composed of serum and micrococci, while the intestines are lax and œdematous, and the muscular structures are paralyzed, with resulting tympanic distension. The peritoneal covering of the intestines is devoid of lustre, and covered with injected patches, or is stained of a dark-brown color. Death often occurs before the occurrence of exudation, while thrombi in the uterine and pelvic veins are common during the puerperal period. The coagulation may be caused by compression or by enfeeblement of the cir-

culution, while a predisposition to its occurrence is created by relaxation of the uterine tissue. A normal thrombus is in itself harmless, but in time it becomes organized, and the occluded vessel is converted into a connective tissue cord, or a channel may form through it which permits the passage of the blood stream. When, however, pus or septic matters obtain access to a thrombus, it undergoes rapid disintegration, and the particles get swept away into the circulation until arrested in the ramifications of the pulmonary artery. Wherever these poisoned emboli happen to lodge, inflammation is set up in the adjacent tissues and abscesses result. Inflammation of the veins (phlebitis) sometimes occurs when the vessels have to traverse tissues in or near the uterus infiltrated with purulent or septic materials. The endothelium then undergoes proliferation, and thrombosis is produced. Phlebotic thrombi do not necessarily break down, and may in that case act as a barrier to the progression of septic germs into the circulation; generally, under the influence of inflammation and infection, they are changed into puriform masses. The thrombi grow by accretion in the direction of the heart, extending from the uterus through the internal spermatic, or through the hypogastric and common iliac veins, to the vena cava. Sometimes the thrombus may be traced back to the placental site. From these local conditions, sooner or later, secondary affections occur in distant organs. The general affection is, in great part at least, likewise of local origin. Sometimes, however, where the poison, which enters the system through the lymphatics and veins, is very active and abundant, death may follow from acute septicæmia before the changes in the sexual organs have had time to develop, fatal result being due to paralysis of the heart.

Fifty years ago the contagiousness of puerperal fever was combated as a pernicious heresy by both Meigs and Hodge, of Philadelphia, at that time regarded as the best authorities upon obstetrical questions in this country, thus Hodge, addressing his students, said: "The result of the whole discussion will, I trust, serve not only to exalt your views of the value and dignity of our profession but to divest your minds of the overpowering dread that you can ever become especially in women under the extremely interesting circumstances of gestation and parturition, the ministers of evil—that you can ever convey, in any possible manner, a horrible virus so destructive in its effects and so mysterious in its operations as that attributed to puerperal fever;" and Meigs, in his letter to students, wrote: "I prefer to attribute them to accident or to Providence, of which I can form a conception, rather than to a contagion of which I cannot form any clear idea, at least as to this particular malady." Against these rhetorical utterances, in a classic essay published in 1843 by Prof. Oliver Wendell Holmes, entitled *Puerperal Fever as a Private Pestilence*, the opposing testimony in favor of contagion was presented with wonderful literary and scientific skill. His evidence was complete and conclusive, and has exercised a most beneficial influence upon the practice of midwifery in America; Lusk says, with his many claims to our admiration and esteem, there is probably no title which the reputation of Oliver Wendell Holmes wears with greater pride than that

of pioneer in a movement that has done so much to prevent the slaughter of innocent women and the wrecking of happy homes.

As to treatment Lusk states the truth when he wrote that the first duty of the physician is to refrain from attending a case of labor when fresh from the presence of contagious diseases or from contact with septic materials, from the dissecting-room or the clinic, for scepticism regarding these sources of danger is sure to be severely punished. It is well, in every case, that a full bath and a complete change of clothing should be had. A special coat for confinement purposes, stained with blood and amniotic fluid, conveys infection. In every case of labor, whether in hospital or private practice, the hands and forearms should be freely bathed in an antiseptic solution before making a vaginal examination while a nail-brush should form a part of the ordinary obstetric equipment and frequent examinations during labor should be avoided. All instruments employed during or subsequent to confinement should be carefully disinfected. In prolonged labors, after operation, in cases of dystocia or where the membranes have ruptured prematurely and the foetus is dead, wash both uterus and vagina with warm carbolized water, or solution of corrosive sublimate (1:2000), or similar antiseptic solution. In Vienna, both Spaeth and Braun after difficult labors introduce a suppository of iodoform, 2 to 2½ inches in length, into the uterine cavity. The formula recommended consists of:

R. Iodoformi,	20 grammes;
Gummi Arabici,	
Glycerinae,	
Amyli puri,	aa. 2 grammes;
Ft. Suppositories,	No. iij.

In their introduction the half-hand (left) should be passed to the cervix; the iodoform suppository should be seized by a pair of polypus forceps and pushed into the cervical canal. The hand in the vagina should then be used to shove the suppository upward past the internal os. No symptoms of poisoning from the iodoform have been observed. The disinfection is complete and prolonged. In hospitals the woman should be bathed before entering the lying-in ward, and the vagina should, in all cases, be disinfected with carbolic acid or corrosive sublimate, both before and immediately after labor. The conduct of labor under carbolic acid spray is commended by Fancourt Barnes. Doleris advises the application of a compress soaked in carbolic fluid to the external genitals during the progress of labor. Tarnier advises dressing the vulva, so soon as the head begins to emerge, with a pledget soaked in carbolized oil (1:10). With the recession of the head during the interval between pains a portion of the oil is carried upward into the vagina. In the puerperal period the warm carbolized douche stimulates uterine retraction and promotes the rapid healing of wounds in the vaginal canal; in hospital practice it possesses the additional advantage of preventing the accumulation of putrid albuminoid matters in the air. In private practice the patient should employ a new syringe; in hospitals every woman should be supplied with a glass tube, to be attached to the irrigator. When not in use these tubes should be immersed in carbolic acid. The stream injected into the vagina should be continuous, like that furnished by the foundation syringe.

With hospital patients, in place of cloths to the vulva, many authorities, such as Lusk, have been in the habit of using oakum. By soaking the latter in a solution of carbolic acid the vulva is surrounded by an antiseptic atmosphere; these directions are justified by experience, and the carrying out of the details given easily becomes a matter of habit; by such precautions puerperal fever is destined to be erased from the list of dangerous diseases attacking the woman in childbed. Nevertheless, it is true that a physician ought never to lose the sense of personal responsibility for its occurrence, for puerperal fever must be regarded a preventable disease, and an attack as the evidence that some source of danger has been overlooked, though, owing to the imperfection of our knowledge, it may easily happen that even with the keenest scrutiny the precise cause in an individual case may escape detection.

It is to be recommended that in every case of fever of puerperal origin the vagina be cleansed with a 2 to 3 per cent. solution of carbolic acid or corrosive sublimate (1:3000) every four to six hours, or similar antiseptic. Remember that in most cases the infection starts from the wounds of the vagina and of the cervix; the tendency of the secretions to stagnate in the vaginal cul-de-sac, bathing as they do the cervical portion, is a prolific source of septic trouble. In all but the mildest cases the vaginal orifice should be examined with reference to the existence of puerperal ulcers. All necrotic patches should be touched with hydrochloric acid, with a 10 per cent. solution of carbolic acid, with iodoform, or, what I personally prefer, a mixture composed of equal parts of the solution of the persulphate of iron and the compound tincture of iodine. The latter acts as a powerful antiseptic, while the former, by corrugating the tissues, closes the lymphatics and shuts up the portals through which the septic germs penetrate into the system. Intra-uterine injections should be resorted to with extreme circumspection. They are not indicated by a simple rise of temperature. A very large proportion of the febrile attacks which occur in childbed run an absolutely favorable course; unless the infection proceeds from the uterine cavity they are unnecessary. In circumscribed inflammations, where the morbid poison loses its virulence at a short distance from the puerperal lesion, they are often injurious. It is difficult, if not impossible, to so conduct them as to avoid opening up afresh recent granulating wounds. Yet the practice of local disinfection is warmly advocated by Fritsch, Schuller, Langenbuch and Schroeder as a prophylactic against puerperal affections. On the other hand, Braun von Fernwald, with his vast opportunities for judging obstetrical questions, writes with reference to this: "We must protest against injections made by physicians into the uterine cavity. Such meddlesomeness is more likely to do harm than good." This corresponds with my own experience. In theory, the proposition to treat the uterus as one would any other pus-secreting cavity seems rational, but I have found that every attempt to carry the theory to its logical conclusion in hospital practice has been followed by a rise in the puerperal death-rate. Runge reports an epidemic of puerperal fever in Gusserow's clinic, brought about by the employment of intra-uterine irrigations, during which the mortality rose to 3.8 per cent. With the abolition of the irrigations the mor-

tality sank to .39 per cent. In 1880 Fischel introduced the so-called permanent irrigations into the Prague maternity. Of 880 patients, 9 died of sepsis. The irrigations were then prohibited, and in 1882, of 521 patients, there were no deaths from sepsis. Fehling, who limited the use of intra-uterine injections to special momentary indications, reported, in 1880, 415 confinements without a single death.

In cleansing the uterus the syringe employed should produce a continuous and not an interrupted stream, and all air should be expelled from the pipe; the tube to be passed through the cervix should be of glass, of the size of the little finger, and bent somewhat to conform to the pelvic curve. The vagina should first be subjected to a thorough disinfection, by way of precaution against conveying septic materials into the uterus. The introduction of the tube should be made with the guidance of two fingers passed through the external os. But slight force is requisite to reach the internal os. It is neither necessary nor desirable to push the tube to the fundus. The fluid injected should be tepid, and, if carbolic acid is used, of the strength of two or three drachms to the pint; if corrosive sublimate is employed, the strength should not exceed 1:3000. It should be introduced very slowly, and pains should be taken to ensure its unimpeded escape, which can usually be accomplished by pressing the anterior wall of the cervix forward by means of the glass tube. Langenbach recommends securing permanent drainage by leaving a bit of rubber tubing in the cervical canal—a plan concerning the merits of which I am not able to speak from experience. The tube is said to be well tolerated, and to possess the advantage of enabling subsequent injections to be performed without disturbing the patient. In many cases the results of intra-uterine treatment are very striking. Often the temperature falls notably within an hour or two of the operation. This result is, however, rarely permanent. Usually the fever recurs, and the operation has to be repeated. The patient should be carefully watched, and with the first sign of returning danger the injection should be repeated; two or three injections may be called for in twenty-four hours, continued for a week if necessary. Still, by the means indicated, a certain pretty large proportion of women, seemingly destined to destruction, in the end make favorable recoveries. The peritoneal pain is commonly of a lancinating character, and is associated with hurried breathing and extreme frequency of the pulse. So soon as the pain is once fairly under control the violence of the onset begins to abate. It should be met, therefore, by the hypodermic injection of from one-sixth to one-third grain of morphia in solution. The anodyne action should be maintained by doses administered by the mouth in quantities and at intervals suited to the severity of the case. It is, however, good practice to push the opiate until pain elicited by pressure is likewise controlled, provided it can be accomplished without producing narcosis. In susceptible patients and in localized inflammations the quantity required may not be very great, while in acute general peritonitis the tolerance of the drug exhibited by puerperal women is sometimes extraordinary. Thus, a patient of Alonzo Clark took the equivalent of 934 grains of opium in four days; a patient of Fordyce Barker, 13,969 drops

of Magendie's solution in eleven days; and one of my own, at our Maternity, the equivalent of over 1,700 grains of opium in seven days. In this latter instance the patient was to all appearances moribund when the treatment was begun. Thus, the features were pinched, the face was drawn, the pupils were dilated, the fingertips were blue and cold, the respirations were rapid, and the pulse was scarcely perceptible. In this condition the large doses of opium did not produce narcosis, but were followed by restoration of the circulation, by normal breathing, and by the appearance of the symptoms of shock. Any attempt to relax the treatment was at once succeeded by a recurrence of the alarming symptoms. At the expiration of the disease the opium was discontinued abruptly without detriment to the patient. In contrast to cases of acute peritonitis an extreme susceptibility to opium may be observed in the pyæmic variety; here opiates seem rarely to do good. They do not hinder the migrations of the round bacteria, there is rarely pain to relieve, and their administration was simply the addition of a second poison to the one which already was overwhelming the nervous system, as pointed out so ably twenty years ago by Lusk.

PRACTICAL NOTES ON MIGRAINE.

BY W. T. MARRS, M.D., PEORIA HEIGHTS, ILL.

THIS is a subject of great importance. The victim of migraine, or hemicrania, suffers much more intensely than is often thought. His physician as well as his friends do not look with much concern upon his ever-recurring attacks. His case is so often summarily dismissed with the remark that it is "only sick headache." While this type of headache does not often prove fatal and seldom eventuates in other diseases and grave sequelæ, yet the patient requires painstaking treatment on account of the pain he suffers and the break into his daily affairs.

Hemicrania occurs in paroxysmal attacks and, as implied by the name, on one side of the head. It is accompanied by vaso-motor disturbances in nearly all cases. During the attack, which usually lasts from twelve to eighteen hours—sometimes longer—the patient is in no fit condition for labor or exertion of any kind. The attack is usually preceded by certain prodromal symptoms which are often quite variable in character. Among these are impaired vision, nausea, depression of spirits and a compressed feeling about the head. During the attack the vaso-motor symptoms are quite marked. Coughing, stooping or any change of posture increases the patient's suffering.

Periodicity is one of the characteristics of this affection. It recurs with a certain degree of regularity, usually the attacks being from two to four weeks apart. During the interim the patient is likely to be free from pain and enjoys a fair measure of health. Many, however, may have an attack superinduced at any time if subjected to fatigue, anxiety or excitement. There are many people who cannot visit the theatre or other places of amusement without paying the penalty in an attack of sick headache.

As to causes, pathogeny, etc., a volume might be written. It occurs mainly between the ages of 20 and

45 and no trade or calling is exempt, but occurs much more frequently among professional people and those who live in the realm of thought. It occurs twice as often among females. Sometimes the trouble is traceable to menstrual irregularities. In many cases the family history shows a marked neurotic taint. Chronic anæmia is also a predisposing cause. It is quite common to name the stomach as being the storm centre of the trouble. It is true that gastric irritation usually accompanies the attack, but as a rule the nausea is a result and not a causative factor. The gastric irritation is mainly of nervous or central origin. In some cases, however, the attacks may be due to constipation and the consequent absorption of toxins.

As intimated above, the attack usually depends upon vaso-motor disturbances and its resulting anæmia or hyperæmia of the brain. The seat of pain is thought to be in the pia mater and the cerebral cortex. Others have classed migraine as a neurosis along with epilepsy, where the nerve centres have a tendency to irregular accumulation and discharge of nerve force. The immediate antecedent of an attack is thought to be a condition of unstable equilibrium and gradually accumulating tension in the nervous system, while the paroxysm is likened to a storm by which this pent-up energy is dispersed and the equilibrium for a time restored. The paroxysmal character of an attack, its complete and rather rapid subsidence and freedom from pain during the interim, all lend some support to this theory. The absorption of toxins from the duodenum has received a good deal of consideration of late. It has been pointed out that these attacks do not occur if the intestines be kept clean and as aseptic as is possible. Ocular defects produce migraine, but not nearly so often as refractionists would have us believe.

After considerable research and tentative investigation I have reached the conclusion that the causative factors in migraine are protean in character. It may result from a variety of systemic derangements all the way from uric acid to an indefinable neurosis. Each case must be studied and treated on its individual peculiarities.

The treatment is therefore quite intractable in some cases. The patient so often has come to regard his condition as a necessary evil and is reluctant to carry out a definite line of treatment for any length of time, but only seeks temporary aid when in the throes of an attack. If each case is carefully studied and put under judicious regimen and treatment he stands a good chance of being permanently relieved. In all cases the physician should exert a careful scrutiny for any untoward symptoms resulting from diet, habits, occupation and general environment. Tea, coffee and alcohol, if used at all, must be taken in moderation. Cocoa is much to be preferred, particularly when there is a nervous element manifest. If the patient is inclined toward a plethoric or lithæmic condition the iodides with an alkaline may be very serviceable. If anæmic and poorly nourished a course of iron and cod liver oil is indicated. Above all else late suppers and indigestible foods cannot be indulged.

The majority of cases suffering these awful headaches do not get sufficient sleep. It is during sound

and refreshing sleep that the brain and ganglionic centres receive their nutrition and repair. It has recently been pointed out by good observers that the requisite amount of sleep depends more upon its quality than its quantity. The sufferer from migraine should have eight or ten hours of good sleep and when possible an hourly siesta. Constipation should be religiously combatted. Toxines may exist in the small bowels with an ever-present absorption even when there are daily evacuations of the bowels. The patient should obviate constipation more through regularity of going to stool and a fruit and farinaceous diet rather than depending upon cathartics. When the patient's symptoms warn him that an attack is imminent an alkaline cathartic may be of value. Free catharsis always lessens the hyperæmia of the brain and helps to equalize the circulation. The patient should drink water copiously between meals. The various mineral waters are often of great efficacy. Static electricity has done much good in many cases as well as a long course of cannabis indica.

In those cases where a uric acid element is present Dr. Haig thinks that at the beginning of an attack 40 to 60 drops of dilute nitro-muriatic acid taken in two doses within an hour may be of great value. The acid should always be taken in strong lemonade.

Many drugs have been used to relieve the paroxysm. Perhaps every anodyne, hypnotic and sedative in the catalogue has been given an impartial test. At the onset of an attack the patient should, if possible, seek a darkened room and assume a recumbent position. When there is heat and throbbing about the temples cold applications are quite palliative. An ice-bag may be the most effective manner of applying cold. Menthol and chloral makes an excellent anodyne application. This is usually applied in equal parts, but in case of blonds and persons with delicate skins the remedy may produce much burning and desquamation. A mustard plaster applied to the nape of the neck affords much relief in some cases. A hot-water bottle applied to the feet is of much value to those who have a weak circulation. If there is an insufficient flow of blood to the head, as evidenced by a pale face, glonoin may be of service. The writer has usually been disappointed in this drug when there was even a seeming indication for it. The violent heart-throbbing and fullness of the temporal veins produced by this drug so often seem only to aggravate the patient's suffering. Strychnine and aromatic spirits of ammonia will usually give better results when a stimulant is indicated. If it were not for the danger of incurring a drug habit I believe that the attacks would be materially shortened by narcotizing the patient at the onset by a fair dose of morphine, subcutaneously administered. I am free to admit that this would be a dangerous routine, particularly if the patient knew the name of the drug he was obtaining.

Among the dozens of sedatives employed I may name caffeine, guarana, gelsemium, digitalis, bromide of potassium, chloral, butyl-chloral, sulphonal, camphor, etc. I have left the coal-tar derivatives until the last that I may give them a word of special consideration. Acetanilide is decried by medical men

the world around, yet the majority of them give it to try to ameliorate the patient's suffering. If a couple of full doses do not bring relief it is reckless treatment to push the remedy to the point of producing cyanosis. It should be given with bicarbonate of soda. It is the rule to give caffeine at the same time in order to counteract cardiac depression. A little brandy may be used in the place of caffeine.

The ultimate effect of the coal-tar drugs is to disturb the oxygen-carrying function of the red blood corpuscles. This may in time lead to a state of chronic anæmia. They have not perhaps the toxic effect upon the heart muscle that was at one time supposed, but they should always be used in a judicious and careful manner.

Death Rate and Disease.—The sixth annual report of the Federal Bureau of the Census on mortality statistics presents the figures for the calendar year 1905, together with revised figures for the years 1901 to 1905, inclusive. The data presented do not cover the entire country, but only the "registration area"—that is, States in which the laws requiring the registration of deaths have been accepted as giving practically complete mortality returns, and to cities in non-registration States in which satisfactory returns are required by the local authorities. This area consisted in 1905 of ten registration States—Connecticut, Indiana, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, Rhode Island and Vermont—the District of Columbia and 123 registration cities in non-registration States. The population of this entire area in 1900 was 30,765,618, representing 40.5 per cent. of the total population of continental United States. Of this number nearly twenty millions were in registration States and the remainder were in registration cities in non-registration States. For the registration area of 1905, which at the census of 1900 embraced only about two-fifths of the population of the country, there were reported 545,533 deaths, or 16.2 in each 1,000 of population, less than that returned for 1904. This death rate (16.2) is lower than that of Ireland, Germany or Italy; but higher than that of England and Wales, Scotland or the Netherlands. The death rates for the several registration States per 1,000 for 1905 follows:

Connecticut	16.5
District of Columbia	20.5
Indiana	12.8
Maine	16.2
Massachusetts	16.8
Michigan	13.5
New Hampshire	17.0
New Jersey	15.8
New York	17.0
Rhode Island	17.1
Vermont	17.0

The diseases from which the mortality seems to be increasing are nephritis, apoplexy, cancer, diabetes and appendicitis; these are mostly chronic and affect chiefly elderly people. Appendicitis is an exception here; but the apparent increase in this cause of death is perhaps due to more accurate diagnoses and the tendency to ascribe to the appendix deaths that would formerly have been laid to the account of other structures. This statement also applies to apoplexy, which was formerly oftentimes reported as paralysis, a disease which shows

a decreasing death rate. Other diseases from which the death rate is decreasing are old age, bronchitis, convulsions, peritonitis and scarlet fever. The causes with their rates, to which twenty or more deaths per 100,000 of population were attributed in 1905, ranked as follows:

Tuberculosis of lungs	168.2
Pneumonia	150.1
Heart disease	132.5
Diarrhoea and enteritis	116.7
Nephritis and Bright's disease....	104.3
Apoplexy	72.2
Cancer	72.1
Accidental traumatism	42.1
Old age	36.4
Meningitis	34.5
Bronchitis	33.5
Premature birth	32.9
Congenital debility	31.5
Typhoid fever	28.1
Diphtheria and croup	23.8

The number of deaths from tuberculosis in the registration area for 1905 was 56,770. Indubitably other deaths were due directly or indirectly to this cause; but they were not returned with sufficient accuracy to be classed in this table. Prominent among these was "hemorrhage of the lungs," "debility" and "marasmus"; there were also well-defined cases of pulmonary tuberculosis when the physicians have ignored the actual cause of deaths and report some terminal condition and have even made some such worthless returns as "heart failure." Among the registration States the rates for pulmonary tuberculosis vary from 58.4 in Michigan to 175.6 in Rhode Island. In the District of Columbia, which is of strictly urban character, and should therefore be classed with cities rather than with States, the rate was 274.7. Other cities in which the tuberculosis death rate per 100,000 exceeded 230 were Newark (241.1); Cincinnati (251.9); San Francisco (275.9); New Orleans (361.5), and Denver (460.4). The large mortality in Denver must be attributed to its large consumptive immigration; its climate is in itself most healthful.

Cancer is only seventh among the causes of death, but its mortality is slowly increasing. In 1905, 24,330 deaths were reported from this cause; of which only 9,189 were males. An increasing number of deaths is shown with advancing age, until the population becomes too much diminished to maintain the numerical increase. Most deaths have been at the ages of 60 to 54 years.

How to regulate one's fees is a subject well considered by Dr. J. B. Roberts (*Jour. A. M. A.*). The physician should have fixed in his mind an estimate of the value of his services, operative or otherwise. The amount should be based on his experience and skill. It should not be so low as to coax away unfairly the patients of his younger and less experienced colleagues. The fee should be lessened when the patient's income would be seriously depleted by its payment. A well-to-do patient should pay the full fee, which should be generous in order to recompense the physician for his expensive education and hazardous life. This fee, however, should not be increased because the physician's services are utilized by a very wealthy person, unless an unusual time is given to the service or an additional responsibility is placed on the physician by reason of the man's position.

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THE BODY'S RESERVE FORCES.

THE physician in active practice must every day have observed that there are in the organism forces in reserve often unsuspected which come to the rescue in times of undue stress and strain, and which maintain the body against conditions most inimical to health and well being. But there has probably been no consideration of these reserve forces so scientific as that which Dr. S. J. Meltzer presented before the Harvey Society of New York City in his paper entitled "The Factors of Safety in Animal Structure and Animal Economy."*

The term "factor of safety" is used by the engineer to designate the margin of safety required in building operations, whether of engines, bridges, or houses. In designing a boiler, for instance, if the tensile strength of the steel of which the plates and stay-bolts are made is 60,000 pounds per square inch, the actual stress which is allowed for the work of the boiler should not be more than 10,000 pounds per square inch for the plate, and not more than 6,000 pounds per square inch for the stay-bolts; thus the stress to which the plates or the bolts may be exposed in the boiler should not be only one-sixth or one-tenth of the actual strength of the steel. Here the factors of safety are said to be six for the plate and ten for the bolts. These factors are often termed factors of ignorance rather than of safety, because they are founded upon our ignorance of what might happen and in the reasonable anxiety to meet unexpected contingencies. And the former term is, we think, even more applicable with regard to the human machine than to those made out of material things by human hands. For the contingencies which the human machine must meet, and the environmental forces tending to destroy it are vastly more complex, more im-

possible to foresee and concerning which we must remain, despite all precaution, more in ignorance. As if foreseeing the contracted sphere of human prescience Nature has constructed the human organism (as all others) with very special consideration not only for the greatest safety, but also for the greatest economy. And in proof of this Meltzer presents most notable data. A number of mechanisms are bilateral—the eyes, the ears, the kidneys, the suprarenals; here in itself is a most efficient factor of safety. Then as to the kidneys, for instance. One of these organs, as we have often observed, has been repeatedly removed with entire impunity if the other kidney was normal. The amount and the composition of the urine remain unaltered; obviously, then, the kidney has an abundance of tissue which can do, at practically a moment's notice, at least twice the normal amount of work. The lungs are organs of supply and elimination of the first order; yet life, as we have all seen in practice, may continue despite great destruction of lung tissue, if only the disease which caused the destruction be brought to a standstill. A whole lung may be entirely consolidated with a pneumonic process without seriously impairing the process of ventilation. And we have found on autopsy that phthisical patients have lived with cavities as large as a Derby hat.

The removal of one ovary or of one testicle seems not to interfere in the slightest degree with the generative function. Men deprived of the function of one testicle either by mutilation or atrophy resulting from disease have repeatedly procreated large families. It has been demonstrated that all but a very minute portion of one ovary may be removed; yet this portion will be sufficient to carry on the functions of menstruation and conception. The thyroid gland possesses four or five times more tissue than is necessary for the complete maintenance of health and life; the suprarenals some ten times more. All but one-tenth of the pancreas may be removed without ill effects. Three-fourths of the liver may be removed without the development of symptoms indicating serious interference with any of its several functions. And so with many other tissues and organs in the economy.

The moralist, in teaching the young the principles of thrift and economy, is fond of turning to Nature for examples to demonstrate his maxims. Here he is all wrong; for there never was a dame more outrageously extravagant than Nature. She is guilty on all sides of extreme superabundance and wastefulness. For example, assuming that a woman's sexual function lasts forty years; that every ten months of these years would be taken up by a pregnancy, then only fifty ova would be required. But assuming even that a regular menstruation is an essential and indispensable part of the sexual function, then 500 ova would be the maximum that

**Jour. A. M. A.*, Feb. 23, '07. Or, the Harvey Society Lectures. (Lippincott's.)

the function of reproduction could use. Nevertheless, the ovary of the new born female child contains between one and four hundred thousand ova; and at the time of puberty there are still about 30,000 ova "ready to enter upon their possible mission." But the provision in the male is incomparably greater; each ejaculation is computed by Rohde to contain 226,000,000 spermatozoa, of which only one can be required and of which only one can possibly be used in a conception.

WHAT SHALL WE EAT?

SOME tests have recently been made by Professor Irving Fisher of Yale which must be rather disconcerting to those among us who like to sit down to a tenderloin steak "done medium," or a bird roasted to a turn. It has been found in these tests that those who eschew such morsels (no pun intended)—those who make up the vegetarian class, which seems nowadays to be growing to rather formidable proportions, are much more able to endure physical fatigue than meat eaters. The tests were: holding out the arms as long as possible; deep knee bending; and leg raising with the subject lying on his back. And, in precise and succinct terms, Professor Fisher has found that "the non-flesh eaters have far greater endurance than those accustomed to the ordinary American diet."

Yet the cause of the meat eater, we humbly submit, is not altogether lost; we are, for our part, not absolutely convinced by the experiments of even so great an authority as Professor Fisher. Why have all men, vegetarians as well as the rest, incisor and canine teeth in their jaws if not for cutting meat? Besides, to return to those Yale tests: It is true that in the test, which consisted in holding the arm out horizontally as long as possible, none of the flesh eaters lasted half an hour, as against fifteen out of the thirty-two vegetarians, of whom "four exceeded two hours, and one stood in position more than three hours." This is not human endurance; it is dervishism. No one will contend, declares an exchange very sensibly, that a Yogi, who sits under a tree holding up his arm at right angles during twenty years, would stand much chance of making the Yale crew or eleven. If the soul can drive the body beyond a certain point of pain or fatigue the body may be trusted to continue of itself until its almost utter collapse. Besides, the vegetarians have much more at stake (again, no pun intended) than the meat eaters. The former are of that soulful and enthusiastic class who want to show that the way of the world (in this case the omnivorous way) since the race's beginning, has been all wrong; and that the herbivorous way is the only right way. There is nothing that your thorough-going enthusiast cannot endure; this has been proved

repeatedly. And the vegetarian has so constantly to fight temptation arising from succulent and deliciously odorous flesh pots, and the social inconvenience (some would think it a nuisance) of being a dissenter in diet, that he would naturally become capable of wonderful feats as the result of this discipline. On the whole, Professor Fisher and his heroic "subjects" do not seem to have settled the matter beyond peradventure; undoubtedly most human beings will continue, for a time at least, to adopt a mixed diet—meats, fish, grains, herbs and nuts—with mushrooms and frogs' legs as occasional side dishes.

THE MEANING OF EVOLUTION

THE reality which is the quest of all philosophy, and the truth which expresses it—these alone are immutable; everything else changes. In such terms does Saleeby, in *Evolution the Master Key*, essay to correlate all cosmic phenomena; and he founds his thesis upon the *synthetic philosophy* which Herbert Spencer formulated.

Evolution, as we understand it to-day, is based upon this dictum—that nothing is constant but change (with the reservations noted), coupled with the greatest generalization of the nineteenth century—the *conservation of energy*.

That all things change, that species of animals are not immutable, nor species of atoms, nor anything else, is a belief as old as human thinking. Only to mention isolated geniuses: Heraclitus of Ephesus and Gautama the Buddha both had a fairly complete grasp of the doctrine of "ordered change," as exemplified in such relatively few facts as were known in their day. And surely Shakespeare, the genius of all time, discerned the essential mutability of things universal when he imagined Imperial Cæsar, dead and turned to clay, stopping a hole to keep the wind away. Nor was Goethe any the less prescient in his conception of the *Uebermensch* (The Superman).

But the essence of this philosophy lies in the term "ordered change" just employed. It is to the undying credit of Darwin, Spencer, Huxley and their associates, that they have demonstrated cosmic change to be orderly and not chaotic; in obedience to inexorable laws and not at all by chance. An evolution attempts to give these laws expression. It explicitly denies any exceptions. These laws apply alike to stars and souls, to atoms and oak-trees, to States and religions, to dust, dynamics and dogmas. There have from time to time appeared to be exceptions, which have all, however, one after another, been explained away. Probably the most striking of these was the existence of the chemical "elements," which those of us over forty understood in our

college days to be immutable; but we know now that they are all but forms of the electron which is the actual unit of all matter.

Saleeby differentiates between the terms "change" and "development"; the latter implies a goal. But "evolution, as we know it, though it may appear in our own time to be working toward 'some far off divine event,' yet appears to have such only as a proximate and temporary goal. The great rhythm of the universe may show such a crest, but, as far as we can see, the wave must travel on, and the upward movement be followed by a downward in this endless cycle which the synthetic philosophy, like so many of its ancient Oriental predecessors, reveals to us." Such a doctrine of sempiternal change may jar upon many of us. There is something dreadful in the belief that "from low to high doth dissolution climb"; sparing absolutely nothing. But if the evolutionary, or any other philosophy be true, it must be accepted, whether it pleases us or not, we must, with Huxley, follow Truth "wherever she leads."

This evolutionary philosophy has come to permeate medical science, as it has all other phases of life. Nowadays we "think in evolution," oftentimes not realizing that we do so. For the old static view of things, which regarded them as at rest, evolution has substituted the dynamic view, which regards them as in motion.

MOSQUITO DRAINAGE.

THE festive anopheles will soon be upon us. During April the first brood has been hatching in that mosquito Elysium comprised between Hackensack, the Jersey shore, Staten Island and the Oranges. In the Bronx and on Long Island there are also most delectable tidal inlets and wide marshes, in which propogation may thrive. As a poetic exchange puts it: "The spotted female anopheles will be drinking in malaria and will mingle her perilous stings with the vicious bites of the culex sollicitans and the minatory songs of the can-tator." Much has, indeed, been done to mitigate this pest and really serious menace to the communal health. Here purely business interests of an enlightened sort have been active in a way to redound to the general welfare. Property owners in the Bronx, for instance, have sought to increase the value of their holdings by undertaking prophylaxis. Mr. Henry Clay Weeks declares that much of the borough is well situated for the propagation of mosquitoes in great numbers; and he counsels the deepening of the little upland streams and the construction of a tidal dike at Clason's Point.

As our lay namesake indicates, the new subway connections with the Bronx and into Long Island

and New Jersey will mean a vast improvement of real estate values; but only when the areas to be settled shall be cleared of mosquitoes. Dr. Doty, our very able quarantine officer, began early last summer with Staten Island, draining the salt marshes on its eastern and southern shores. The result was an enormous "boom" for real estate dealers, transportation companies and summer resorts. The New Jersey authorities are now following his example, with a State appropriation of \$350,000; and when the Pennsylvania and the McAdoo tunnels are opened those who own property will reap manifold from their investment, as will also the community at large.

Thus does the world benefit by the enlightened and sane application of well founded scientific principles.

WHAT CONSTITUTES A CURE.

A CASE against the surgeon Doyen recently tried in Paris has its lessons. One Mr. Crocker sought to recover 100,000 francs, which he had paid to Doyen as compensation for undertaking to cure Mrs. Crocker of a cancer. This unfortunate lady succumbed to the disease, however, after a long trial of the physician's remedy. The technical charge against the surgeon, states the *Evening Post*, was based on the alleged violation of laws prohibiting, first, the distribution of therapeutic serums which have not received the government's authorization, acting on the recommendation of the Academy of Medicine; and, second, the sale of secret remedies. The legal counts were supplemented by a charge of fraud. "By the bedside of a dying woman," declared Mr. Crocker's counsel, "he insisted on figuring the selling price of a hope he did not possess and of a remedy of which he had no right to dispose."

Doyen's counsel sought, by citing letters from men of the highest eminence in the scientific world—Roux, Metchnikoff, and others—to free him from the stigma of quackery. "Under these circumstances," pleaded this counsel, "how can it be maintained that M. Doyen was not acting in good faith when he wrote that he was hopeful of curing Mrs. Crocker—especially when we consider what is meant by 'cure.' This word has a different signification according as the disease we combat is acute or chronic. 'Cure,' in its complete sense, can be used only of acute maladies, such as pleurisy. But when we are dealing with a chronic affection, 'cure' can only mean 'amelioration' or 'prolongation.' A youthful consumptive is restored to improved health and lives till seventy. Was he cured? No. An autopsy reveals the presence of tubercles in his lungs. In a chronic disease the physician can only retard the approach of the fatal end."

Then speaks Doyen himself on the witness-stand: "One of the duties and responsibilities of our profession is never to assert absolute confidence of affecting a cure." Among his patients was a poor woman whose condition was very like Mrs. Crocker's, and who was still alive. "If chance had willed it that Mrs. Crocker should survive, and that the poor patient should die, Mr. Crocker would have blessed me. He reviles me because of the two women it was his wife that died. What would you? Man is mortal. *Le médecin n'est pas le bon Dieu.*"

The situation here presented is certainly a most difficult one. Nor, although the case was settled in the surgeon's favor, do we consider that his arguments and those of his counsel here set forth, were entirely disingenuous and straightforward. In the present state of our cancer therapy no physician or surgeon can conscientiously promise a cure; that must be the province of the Christian Scientist, and all that tribe. The lawyer could, with as little propriety, promise his client that he can win his case for him; but such a promise he could not keep, unless he had "the thing fixed" with the judge or the jury, or both. Truly, the physician is *not* the good Lord; and, such being the case, he has no right to assume qualifications appertaining to omniscience and omnipotence.

VON BERGMANN—A GREAT SURGEON.

THIS unusual man—great both professionally and in the larger sphere of citizenship—died recently. Fortunately, however, he had already, on arriving at threescore and ten, been made to feel the love and esteem in which his confreres and his countrymen held him. On his seventieth birthday forty delegations called upon him; and it took over five hours for them to file past him. His patriotic services during three wars were on this occasion gratefully recognized by his government, which was represented at his reception by officials from the Departments of War and Education. The German universities were impressively in force. Nor were leaders in other walks of life absent; many whose life work is in the arts, in music and the drama, were present to pay tribute to this surgeon's wide sympathies and culture, such as are characteristic of the highest type of German scholarship.

As physician and surgeon von Bergmann was emphatically a pioneer and a leader. His chief interests lay in the study of antiseptics and in brain surgery. At the outset of his career he had, with Lester and others, to face the awful complications of wound and hospital fever; in those days the sources of infection were countless, and the wounded in war had reason to fear less the shot of the enemy than the

surgeon's generally septic steel probe and his oftentimes unclean knife. At that time the knowledge of bacteriology was still in its infancy, and such antiseptics as had been inaugurated took the simple form of excluding air from the wound by means of dressings.

Von Bergmann should be an inspiration to the medical man, not only in the professional sphere, but in the broader realm of human sympathies and human interests. And gratitude should be felt toward him, especially because he has demonstrated that no faithful worker lives in vain. The humane and altruistic achievements of this single hero have redounded enormously to the welfare both of his own fellow-countrymen and of the world, and we rejoice that before his eyes were closed in death he knew how much his day and generation had been helped by his labors, and that his life-work had received adequate appreciation. Herein he was more fortunate than many another who has labored for his kind—whose kind knew him not.

LONGEVITY.

A NINETEENTH century achievement in which our profession may justly take pride is that the average human life has been much prolonged; this is mostly due to the splendid advances made in the science and art of medicine. Among these advances are antiseptics and anæsthesia, by means of which lesions otherwise inevitably fatal have been radically removed. The science of bacteriology is now but forty years old, beginning, in the modern sense, with the work of Pasteur; wherefore, the exact knowledge of three-fifths of all diseases is of but recent attainment. We are on the verge of a new system of therapeutics; the serums certainly do promise much. The modern science of prophylaxis and sanitation has contributed enormously to the lengthened span of human life.

In a consideration of old age the always original work of Metchinkoff commands attention. In "Studies in Natural Death," an article appearing in *Harper's Magazine* for January, this eminent man states his belief that sleep is the result of self-poisoning through toxins evolved by exhausted tissues; the instinct to suspend their function is brought into play, so that the system may clear itself sufficiently of the toxic products. Taking his hint that old age is a phenomenon characterized by an accumulated residual fatigue poisoning, Weichardt sought to discover the nature of this poison, and to discover, if possible, its antitoxin. Metchinkoff thus describes Weichardt's findings. The latter kept laboratory animals executing fa-

tiguig movements without interruption for hours, after which they were killed and a muscular extract taken from their bodies. This was found to be very poisonous, and normal animals, when injected with it, evinced great weariness; and some died in the course of from twenty to forty hours. When introduced into the circulation of normal animals in quantities insufficient to destroy life, the formation of an antitoxin was provided. And when Weichardt injected this antidote serum the animals showed no sign of physical disturbance.

Carl Snyder reports (*The London Monthly Review*) that human beings inoculated with Weichardt's serum are usually capable of prolonged effort. If this theory be well founded—that the instinct of sleep is due to the effect of autointoxication induced by fatigue; and if an appropriate antitoxin can be perfected—it is quite logical to hope that the old age limit thus far attained may by this means be still further extended.

MIND IN NATURE.

THE extent to which mental phenomena are pervasive in nature is conditioned largely upon definition. What is mind? We shall here present but one of many definitions, that of Mr. F. W. Headley in his most admirable, clear and untechnical book entitled "Life and Evolution."* Headley's criterion of mind lies in the power of choice. He admits that the power of learning by experience is a surer test; but there are cases where conclusive evidence for this power fails us. In such cases there may or may not be learning from experience, but there is beyond peradventure a power of choice. Headley instances our old friend, the *amœba*, which we have since childhood all agreed to be one of the most primitive forms of life. This microscopic creature, a unicellular morsel of protoplasm, undoubtedly has the power of choice. It exercises this power whenever it eats. Diatoms enveloped in flint are its favorite food. When an *amœba* comes in contact with one of these minute vegetables, it swallows it through an aperture—a mouth—which it conveniently makes at whichever point an aperture is required. But when, on the other hand, the *amœba* comes in contact with a small grain of flint he leaves it severely alone; he does not treat it as he does the flinty envelope of the diatom.

An infusorian rather interesting in this regard is the *amphileptus meleagris*, who swims by means of cilia. When he encounters the *epistylis plicatilis*, another infusorian, that anchors itself by means of

a long stalk, he feels the latter and partly encloses it in his pliable body. He then fastens himself on the upper part of his victim, opens his huge mouth (which is never to be seen, except when he is eating) and slips over the *epistylis* like a glove finger over the finger of the hand. Then, having wrenched the *epistylis* from its anchor by twisting, he completes his gruesome meal. Here seems to be demonstrated not only power of choice, but also real intelligence.

Do these one-celled organisms also learn by experience; that is, do they profit by trial and error; have they mind to this extent? Yes, so it would seem. Headley has experimented on the *zoothamnium*, an organism but little higher in the scale of the animal existence than the two just mentioned, and has certainly found evidence of what we would term in the higher animals a profiting by experience, a thing generally considered impossible without intelligence. The *zoothamnium* is a tree-like colony of one-celled infusorians that swim by means of cilia. This colony lives fixed by its stem, which, with its band of muscle, is very contractile. At the slightest suspicion of danger this expanded "tree" will shrink to its smallest compass. If this colony be put in a small tank, it will expand, the component zooids being on the lookout for any microscopic edibles that may come within reach. If, however, the tank is jarred, there is an instantaneous contraction of the whole, after which comes a comparatively slow expansion, as if to see whether the coast is clear again. But Headley then found that when the tank had been jarred several times, and each jar had been followed by a contraction, succeeded by a re-expansion, the *zoothamnium* began to realize that there was, after all, no danger, and would no longer contract. It would seem to have learned by experience that the jarring conveyed no danger. It remembered that no unpleasant consequences resulted from a jar.

Evidently, then, mind—under Headley's definition—is practically all-pervasive in nature; it has even been manifested in the mineral kingdom, which we are accustomed to consider inorganic. But for these and many other matters of most absorbing interest, we must refer the reader to the work of Headley, which is a revised and expanded reproduction of lectures delivered to the Heilebury Natural Science Society—audiences without especial preliminary technical knowledge. The author therefore aimed, and with great success, to make his subject clear to those who have not professionally scientific training; wherefore, this book should be as readable as it is certainly useful and informing upon a very vital subject.

*E. P. Dutton & Co.

THE VALUE OF STATISTICS—GETTING AT THE REAL CAUSE.

It should be borne in mind that statistics, in and of themselves, are never of practical value, however interesting they may be. It is only as they suggest some line of study with regard to underlying causes or test therapeutic measures, that they afford a basis for practical results. Considered as arbitrary facts, they at best furnish a rule of thumb and, at the worst, lead to fallacious reasoning.

Vital statistics have their greatest interest to medical men for the light which they shed upon etiology. Unfortunately, vital statistics as commonly compiled, even when perfectly accurate, are prone to suggest false conclusions. This is due partly to defects in nomenclature of disease, and to errors in diagnosis. In some instances, nomenclature is quite accurate and diagnosis easy, so that positive and negative errors tend to neutralize each other, as in the case of scarlet fever, consumption, etc. In other instances, the same term includes diseases of very different etiology, as meningitis, pneumonia, etc. In still other instances, diseases of identical or analogous etiology and morbid anatomy, assume very different clinical pictures according to the region involved, as apoplexy, infarction, various interstitial inflammations of the liver, kidneys, etc., and diabetes, all of which are essentially due, at least in large measure, to vascular degeneration. Especially in skin and nervous diseases, the nomenclature follows superficial appearances to a large degree.

Thus, it is only occasionally that vital statistics enable us to determine the incidence of definite morbid processes.

It often happens that statistics or even untabulated experience, show a preponderance of incidence according to age, sex, nationality, race in the broader sense, climate, altitude, mere geographic locality, occupation, etc. All of these factors, though not strictly etiologic, have a bearing upon etiology and, also, upon prophylaxis and treatment. We must realize that statements as to the incidence of disease according to these factors are of very little importance until we have found by analysis and exclusion, the actual factor implied. Sometimes the true etiologic relationship is very simple, sometimes most puzzling. Even nearly or quite exclusive restriction of incidence to some general factor, may be quite accidental. For instance, until the settlement of America, the exanthemata and several other infections, were quite unknown among the aborigines. This would naturally suggest climatic or racial factors conferring immunity in one way or another. But the almost total extinction of certain Indian villages by some of these infections in the early colonial period and the marked involvement of the reservation Indians with typhoid, tuberculosis, syphilis, etc., have demonstrated that the real explanation is merely that the germs of these diseases had evolved in the Old World and had happened not to cross the ocean till carried by immigration and commerce.

With regard to age as an etiologic factor, it should be clearly understood that it is improbable that an extrinsic cause should have its effect modified in a conspicuous manner by the age of the tissues and, conversely, it is probable that diseases arising endogenically, should depend very largely upon age for their development. Even the qualifications that we would

be disposed to make to these statements, are not so important as we might be inclined to concede. With the exception of green stick fractures, obvious obstacles to healing in parts supplied by degenerated vessels and the lessened resistance of extreme old age, we find surprisingly little difference between the results of trauma, including surgical operations, in the young and the old. Parasitic involvement, including ordinary infections, is also very much the same in the young and the old, save as may be explained on other grounds than age. For example, we find typhoid infrequent in young infants, but the fact is partly explained by diet and other factors, minimizing the risk of infection. Infections which immunize against recurrent attacks usually occur in the young, but the apparent immunity of the old is either due to early infection or to some other immunizing factor. Such diseases attack all ages impartially, when introduced into new localities and, whereas smallpox was formerly mainly a disease of childhood, vaccination has almost reversed the condition, since nowadays its occasional outbreak exposes foolish or neglected adults and, with the first scare incident, to an incipient epidemic, children are vaccinated by wholesale.

Turning our attention to diseases such as hepatic sclerosis, interstitial nephritis, centric nervous lesions in which fibroid degeneration is an essential feature, we find that not only does advancing age predispose to a marked degree but that we may almost say that senility is the disease, manifesting itself in protean forms. In the case of Graves' disease, diabetes, etc., which have points of especial prevalence both during adolescence or puberty and during the beginning of senile changes, rigid analysis shows that we have quite different clinical and pathological entities, with only enough in common to lead to a confusing and fallacious identity of nomenclature. Sarcoma and carcinoma correspond in frequency, to periods of life in which the respective histologic elements are passing from an active to a quiescent state, and it is significant that every effort to connect these diseases with essentially extrinsic causes has signally failed. So, too, every effort to modify their growth by any other means than eradication of foci, has proved impossible.

Some years ago a diligent and enthusiastic young physician compiled statistics based on municipal reports, to show the incidence of two or more cases of cancer in the same house. The graphic representation of these studies showed a conspicuous crowding of cancer houses in a certain area and suggested predisposition by race and also contagion. Not being himself familiar with the city in question, he quite overlooked the fact that the cancer area was situated in a part of the city in which houses occupied by two or more families were relatively common, and in which boarders were kept by many families. Thus any one street number would be mathematically more liable to the incidence of cancer—or of any other disease—than in parts of the city less thickly populated. The apparent race predisposition was also susceptible of partial explanation. Of the four foreign nationalities largely represented in the city, two were of comparatively recent immigration, so that persons of cancer age would be less numerous. Indeed, these four races could be characterized as follows:

1. Recent immigration, exceedingly fertile, living

in small, one-family houses.

2. Recent immigration, exceedingly fertile, living in tenements.

3. Remote immigration, moderately fertile, living in small, one-family houses and, in sickness and old age, largely compelled to receive institutional care.

4. Remote immigration, moderately fertile, living in one-family, two-family and small tenement houses, thrifty so as to depend less upon institutional care, marked tendency of younger generation to scatter to newer parts of city, while the older generation, partly by habit and partly on account of being tied down by home-ownership, tends to remain in the original race center.

It was, of course, the last race, which was supposed to show a predisposition to cancer.

The mere ability or lack of ability to obtain statistics, may lead to very misleading conclusions. For example, it is comparatively easy to collect quite accurate statistics as to the prevalence of venereal diseases among soldiers and sailors, almost impossible to do so for any other occupation. Most persons suffering from cancer are able to mention at least one other member of the family who has had the same disease, but no one seems to have thought of compiling similar statistics for persons of cancer age who have not cancer. Such an attempt would, however, be futile, on account of the interlinking of families and also, on account of the different degrees of thoroughness with which family histories are known. Again, very superficially, heredity is often studied only in the surname line.

The greater frequency with which married women submit to physical examination often leads to the discovery of lesions which would remain undiscovered among the unmarried. This is especially true of lesions which do not, themselves, produce marked symptoms. There is a very general belief, supported to some degree by statistics, that movable kidney depends upon child-bearing, but impartial statistics may show an equally high proportionate incidence among nulliparae.

Not to go into further detail, the general rule may be enunciated that all statistics should be compiled with a practical end in view, that discrimination should be exercised to exclude coincidence and "post hoc, propter hoc" fallacies and that unless the circumstances are peculiarly simple, collections of observations cannot be depended upon to be more reliable than the individual data of which they are composed.

Home Comforts of the Deaf and Dumb.—Both W. E. Shaw, an electrical worker and inventor, and his wife are deaf and dumb; however, they have most of the conveniences enjoyed by people not thus afflicted, states the *Boston Record*. A caller at their home in Dorchester will press what appears to be an electric button; but this, instead of ringing a bell simply drops a weight which attracts attention within by the vibration it causes. There is an alarm clock which controls wires adjusted to move the inventor's pillow; and another contrivance which at the appointed time flashes a light in his eyes. By pressing a button under the bed, a burglar alarm could be liberated which would certainly paralyze the intruder with fear.

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This practical and most useful volume is the result of twenty-three years of teaching of post graduate pupils. The book is written with a view to a more thorough and broad knowledge of therapeutics, in its larger sense, and it is just here where its greatest value lies. There has been no neglect of aetiology, pathology or diagnosis in the effort to lay more stress upon treatment.

There is no doubt that the practitioner of to-day desires to know more as to the means of cure than formerly, as he realizes that his reputation depends upon his success in this direction.

The public is so familiar with the newer methods of treatment that much more is expected of the clinician of the present period than heretofore. The author in preparing his text seems to have kept constantly in view the practical needs of the physician, a most important desideratum.

In his introduction, the author makes a strong argument against specialism in internal medicine, and advises a reversion to the type of physician commonly designated as the "General Practitioner," as the one best suited to grasp a difficult problem, and to decide when the aid of the surgeon or that of another worker in special fields is necessary.

This manual of practical medicine is one of the best we have, and the progressive therapist will welcome it with open arms.

A System of Medicine. By many writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College, and Humphry Davy Rolleston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital and to the Victoria Hospital for Children; sometime Fellow of St. John's College, Cambridge. Volume II., Parts I. and II. Octavo. Part I., 1,087 pages; Part II., 1,055 pages. Price, \$5 per volume. New York: The MacMillan Company, 1907.

Part I. of this great work contains the continuation of the Infections and the Intoxications, together with an important article on the General Pathology of Infection, by Professor James Ritchie. There is a new article on the Pathology of the Streptothrix Infections by Mr. Foulerton. Syphilis has been transferred to the "Chronic Infections of Established Bacteriology."

Rheumatic fever has been classed with "Infectious Diseases of Doubtful Origin," and has been supplemented by an account of its bacteriological relations. Under "Intoxications" there appears a new article on "Food Poisoning," by Dr. H. Batty Shaw, and the other intoxicants receive the attention that is their due, from able hands.

Part II. is entirely new in arrangement and largely so in substance.

By grouping all the Tropical Diseases and Animal Parasites together, this volume will serve as a complete work on Tropical medicine. In order to provide an authoritative account of the animal parasites and carriers of tropical diseases, special articles by zoologists have been included, with illustrations.

The text is classically and clearly expressed in concise language, which it is a pleasure to read. No library can be considered complete without this splendid work.

Essentials of Chemistry and Toxicology. For the Use of Students in Medicine. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, etc., in Cornell University. Thirteenth edition. Revised by R. J. E. Scott, M.A., B.C.L., M.D. 12mo, 306 pages. \$1.00. New York: William Wood & Company, 1907.

This little volume being confined to the "essentials," which have direct bearing upon the practice of medicine, is well suited to the requirements of the medical student. The chemistry of therapeutics rather than that of pharmacy is considered, and physiological chemistry, one of the most important foundations of rational medicine, has been treated of as fully as space will permit.

A Manual of Obstetrics. By A. F. A. King, M.D., Professor of Obstetrics and Diseases of Women in the Medical Department of the George Washington University, Washington, D. C., and in the Medical Department of the University of Vermont, etc. Tenth edition, enlarged and thoroughly revised. 12mo., 688 pages, with 30 illustrations and three colored plates. Cloth, \$2.75, net. Philadelphia and New York: Lea Brothers & Co., 1907.

This book, intended for the student and the general practitioner, is kept thoroughly abreast the times by its frequent revision, this being the tenth edition. The incessant demand for the book for so many years testifies as to the esteem in which it is held. The text is clear and concise, and contains the characteristics of obstetrics in a most condensed form for ready reference. As a hand-book it will be found very useful.

International Clinics. A quarterly of illustrated clinical lectures and especially prepared original articles on treatment and other topics of interest to students and practitioners by leading members of the medical profession throughout the world. Edited by Warfield T. Longcope, M.D. Octavo, 300 pages per volume. Illustrated in colors and black and white. Cloth, \$2.00 per volume; \$8.00 per year. Philadelphia: J. B. Lippincott Company, 1907.

The International Clinics contains something of interest to every physician, being one of the most practical, economical, and best illustrated works of its kind ever offered the profession. The editorial staff includes medical authorities of the widest reputation with duties that are actual and not honorary, and is one of the strongest associated with any medico-literary enterprise. The real advances made in medicine each year appear in the April number. An encyclopedia for future reference is furnished in specially written articles, by teachers of ability, on topics chosen with a view of embracing in a short time the entire domain of medicine, affording the general practitioner an opportunity of learning promptly the progress being made throughout the world. The cream of practical medicine and the most recent opinions thereon, as illus-

trated by the bedside teachings of the best clinicians of both continents, is shown through the medium of concise lectures by the ablest teachers of the leading medical colleges. A postgraduate course is thus furnished at the smallest cost and the minimum expenditure of time, practically bringing the clinics to your desk. Practical articles, short and crisp, upon subjects with which the physician has to deal in his every-day work, treating the common diseases, and embracing the latest views as to diagnosis and treatment, are given in large number. The illustrating is done by trained medical artists whose regular services have been engaged, and who are under the immediate control and direction of the editor-in-chief. The work cannot be too strongly commended to our readers.

Aids to Medical Diagnosis. By Arthur Whiting, M.D., M.R.C.P., Physician to the Tottenham Hospital and Assistant Physician to the Mount Vernon Hospital for Consumption and Diseases of the Chest, etc. 16mo, 152 pp. Price, \$1.00. New York: William Wood & Company, 1907.

Aids to the Diagnosis and Treatment of Diseases of Children. By John McCaw, M. D., R. U. I., L.R.C.P., Edin., Physician to the Belfast Hospital for Sick Children. Third edition. 16mo, 383 pages. Price, \$1.25. New York: William Wood & Company, 1907.

Aids to Dental Surgery. By Arthur S. Underwood, M.R.S.C., L.D.S., Eng., and Douglas Gabell, M.R.C.S., L.R.C.P., Lond., L.D.S., Eng. Second edition. 16mo, 126 pages. \$1.00. New York: William Wood & Company, 1907.

These little books are just what their titles indicate, and the student will find in them true aids in their work. The text in all of them is most concise and clear, and confined to the main characteristic points of the various subjects. For the purpose intended, we cannot speak of them too highly.

Psychology Applied to Medicine. Introductory Studies. By David W. Wells, M.D., Lecturer on Mental Physiology, and Assistant in Ophthalmology Boston University Medical School, etc. Illustrated. 12mo, 141 pages. \$1.50. Philadelphia: F. A. Davis Company, 1907.

In this little volume the author has attempted to bridge over the gap between psychology and medicine. There is no doubt that psychology will solve many problems in our daily practice, and it is desirable that its study should begin with the undergraduate, and it was with this object in view that this book was written.

A clear statement is made of the important facts of medical psychology, such as Reason and Instinct, Habit, the Subconscious, the Evolution of the Special Senses, and the elucidation of many practical problems of the Sense of Sight, among which is a detailed consideration of the Inverted Retinal Image.

Hypnotism (its history, methods of induction, and theories concerning it) is treated in three chapters. Its value and place in the practice of medicine are carefully considered.

The great subject of mental healing in its many forms occupies three chapters. An attempt is made to find the underlying therapeutic principle, which is so generally obscured by the false notions and extravagant claims of the various sects.

The book concludes with a critical examination of the prevalence of a psychic element in all forms of modern medical methods.

Progressive Medicine. Vol. 1, March, 1907. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 280 pages, with illustrations. Per annum, in four cloth-bound volumes, \$9.00; in paper binding, \$6.00; carriage paid to any address. Philadelphia and New York: Lea Brothers & Co.

The March issue of this publication crystalizes the experience of a host of skilled observers, in all parts of the world, during the past year. In the opening pages Dr. Charles H. Frazier reviews the current literature of the Surgery of the Head, Neck, and Thorax.

Dr. Robert B. Preble deals with Infectious Diseases, including Acute Rheumatism and Croupous Pneumonia. The part taken by insects in the transmission of various infectious diseases is most carefully considered.

Dr. Floyd Crandall, in treating of the Diseases of Children, says:

"A troublesome obstacle that the pediatricist encounters to-day is the general ignorance and helplessness of the young mother. She may be skilled in letters, arts and sciences, as a college graduate, but may know little or nothing regarding the essential hygiene of early life."

Dr. D. Braden Kyle handles Rhinology and Laryngology with his customary skill and clearness.

Dr. B. Alexander Randall, in reviewing the literature of Otology for the past year, calls especial attention to the work which has been done on the labyrinth and its diseases.

The Transactions of the Medical Society of the State of North Carolina for 1906 has been received, embellished with an excellent engraved likeness of the president, Dr. Edward C. Register, of Charlotte. The volume contains 880 pages, the larger part of which is devoted to the publication of the papers read at the meeting. From a hasty perusal we should say that the papers are useful, practical and worthy a wider reading. **The National Association for the Study and Prevention of Tuberculosis.** Transactions of the Second Annual Meeting, Washington, D. C., May 16-18, '06.

The publication of these papers, which are now yearly read in Washington, in the form of Annual Reports, is a most important proceeding. In these pages one may learn succinctly of the work which the best phthisiologists in our country—in our continent, indeed—are doing. The subject is so pregnant that authoritative views are essential; and such views one may be sure to discover in the work of Flick, Flexner, Klebs, McCarthy, Walsh, Landis, Minor, Maher, Baldwin, Bowditch, Trudeau, Pottenger and many other earnest physicians. Nor are the sociological aspects of the propaganda neglected. A number of the 636 pages are devoted to valuable papers by Samuel Hopkins Adams, Paul Kenneday, Irving Fisher and others. No practicing physician should be without this volume. How to secure it? The best way would be by applying for membership to this national association, which represents all that is best in the anti-tuberculosis propaganda in these United States.

The Abdominal and Pelvic Brain with Automatic Visceral Ganglia. By Byron Robinson, B.S., M.D., Professor of Gynecology and Abdominal Surgery in the Illinois Medical College; Consulting Surgeon to the Mary Thompson Hospital for Women and Children and the Woman's Hospital of Chicago. Large octavo, 671 pages. Hammond, Indiana: Frank S. Betz, 1906.

This volume is practically a fully illustrated treatise on the abdominal sympathetic nerves, being a resume of views discussed by the author, in current literature for fifteen years. It is the fruit of original labor, and should interest the general practitioner as well as the specialist.

It is the best exposition of reflex phenomena with which we are acquainted. Suitable details of illustrative cases are so interwoven in the text as to make it intensely interesting reading, with relief to the characteristic dryness of descriptive anatomy.

We cannot speak too highly of Dr. Robinson's devotion to his subject, or of the character of his work.

The work is unique; is not a systematized text-book, but stands by itself, without a rival.

Physical Diagnoses. With Case Examples of the Inductive Method. By Howard S. Anders, A.M., M.D., Professor of Physical Diagnosis Medico-Chirurgical College, Philadelphia; Physician to the Philadelphia General Hospital, Tuberculosis Department, etc., etc. With eighty-eight illustrations in the text and thirty-two plates. Octavo, 456 pages. New York and London: D. Appleton & Company, 1907.

The author of this useful book has found in his experience as a teacher the tendency of students to become entangled in laboratory training, at the expense of careful and minute clinical observation. He neglects or misapprehends both technic and reason, and it is with a view of counteracting this deficiency and tendency that this volume has been produced. The subject is certainly worthy of the bold and masterful handling which it receives.

The subjects of inspection, mensuration and percussion are naturally elaborated with great detail, and there is available article on the stethoscope and its relative advantages and disadvantages in auscultation.

There are convenient tables of differential physical diagnosis, and a graphic chapter on heart murmurs.

There are numerous plates of X-ray illustrations, the finest ever shown in a work of this kind.

The inductive method of study is employed where indicated.

The practitioner will find the book handy as well as the undergraduate.

The Throat in Chronic Systemic Infections.—J. W. Goodale (*Bost. Med. and Surg. Jour.*, Nov. 29, '06) advises routine examination of the throat as a possible portal of infection in cervical adenitis and chronic arthritis. Such should be not merely ocular, but based upon an intelligent application of the related data in physiology and pathology. Goodale considers nine cases of tuberculosis of the lymph glands and infectious arthritis. The former affection may be associated with the presence of tubercle bacilli in the tonsils; a form occurs accompanied by subacute and chronic inflammation of the tonsils and disappears after their excision.

CORRESPONDENCE

PROFESSIONAL ETHICS IN REGARD TO MARRIAGES.

To the Editor of the MEDICAL TIMES:

There is a traditional rule of ethics that any considerable degree of intimacy between a man and a woman—using the word *intimacy* in almost any sense—should be followed by marriage, and that if marriage did not or could not follow, the woman's honor was besmirched. So rigidly was this rule applied in the past that any accidental occurrence that lengthened beyond conventional limits a walk or drive or that separated a man and woman from chaperonage, was supposed to require a proposal of marriage and even its acceptance. For a man and woman, not closely related and not widely separated in years, to travel together, meant social inquisition, scandal and even bloodshed. In a novel still actively circulating, the heroine quite by accident, meets a young man of her acquaintance on a train, and, although he is just beginning a long and important business trip, she feels impelled to ask him to stop off at the first station and miss his connection. While the writer of such a book undoubtedly thinks of herself as an author-ess, it does not occur to her that some other author, taking up her story at this point, might be brutal enough to have the young man refuse this virginal request and even speak harshly, or at least, plainly, to the heroine. In short, the mental attitude is not unique nor entirely obsolete, which places a woman's honor in a very conspicuous and vulnerable position, and which regards marriage as a panacea for its easily acquired lesions.

Last year, we had a very conclusive demonstration of the change of social opinion in this regard. It happened that, through an unforeseen break-down, four young men with ladies were compelled to stay all night at a semi-public resort, instead of returning after dinner. One of the men was married. None of the couples were personally acquainted with one another. It would have been possible to have found some sort of transportation and to have avoided whatever odium might attach to an all-night stay, but this would have been expensive and exceedingly uncomfortable. No one seemed to consider this way out of the difficulty at all. There was no fainting, no hysterics, no proposal of marriage, no scandal, no hair-pulling, but simply a common-sense acceptance of the situation, which, to our mind, indicates a much more wholesome state of social ethics than that of the older novelists, which latter, we suppose, reflects the real opinion of their time. In these days of frequent travel, it is rather the rule than the exception for men and women, traveling alone, to meet acquaintances on trains and in distant cities, and it is exceptional for any one to be so prudish as to consider such meetings with any excitement regarding a possible lesion of any one's honor. Perhaps, indeed, society views with equanimity, meetings of this sort which are not entirely accidental or innocent.

The essential point of difference between present and former social standards, is that marriage is no longer an individual necessity, even for the woman, but a matter of free choice, at least in one direction, and with no inferior social status attaching to the choice of single life.

The ethical relation of our profession to marriage, depends very directly, and, almost solely, upon privileged communications regarding violations of the seventh commandment, but the marriage may be past or present and the violation may also be literal or potential, and may involve merely moral, or both moral and pathologic problems.

As in other questions in which the principle of professional secrecy is involved, we believe that in this case, the privileged communication should be construed as a negative duty on the part of the physician and not to draw him into active deception nor to render him virtually particeps criminis.

In carrying out this principle, our problems are rendered easier if we remember the fact just emphasized, that marriage is no longer a social necessity. This is true even under unfortunate circumstances. The girl who is ruined and not saved by marriage, in these complaisant times, has a much wider choice than suicide and prostitution. We know several who have subsequently made satisfactory marriages with other men, several who are leading useful and apparently happy business lives, at least one who has been "ruined" quite a number of times and who is active in social and religious circles and who enjoys "a good reputation if not a good character." We have even encountered several pregnant young women who absolutely refused to marry their betrayers, although the latter were anxious to marry them. The divorcée is no longer subjected to any great degree of social ostracism, and many seem to find the slight cloud under which they rest more agreeable than the glaring light of unquestioned conventionality. Not long ago, we chanced to see, at a semi-public social gathering, a woman who was the villain in about as dirty a social mess as one could imagine—at least, if any embellishment could be added to a similar case in fiction without reducing the participants to a social level so low as to excite no interest, we are not sophisticated enough to do so. Doubtless this woman did not receive the attention which she formerly commanded, but no stranger would have been aware of her position.

This condition of affairs is, in a sense, unfortunate, and there remain many social circles in which, not only strict morality, but strict conventionality of the old type are required. Still, so far as our profession is concerned, we have a right to be influenced by the fact that the person, man or woman, who, for any reason, ought to be married and is not, or ought not to be married and is, may enjoy a much more lenient fate than physical or moral and social suicide.

Thus, when we read in a medical journal of a doctor deliberately conniving at the marriage of a dishonored woman to an innocent man or one who is only partly to blame, we feel that an important principle of professional ethics has been sacrificed. Yet such cases seem to be fairly common. Before us lies the printed report of a case in which a girl supposed to have gonorrhœa from one man and a fetus from another and in which the physician constitutes himself judge and match-maker, decides which ought to marry the girl, keeps him in ignorance of the true state of affairs and brings the wedding about, a trifle tardily, and yet sufficiently promptly for persons who can be a little indefinite as to exact dates. Within the week,

one physician has given us a verbal report of a successful case of plastic operation on a hymen and another has detailed his subterfuge to imitate the hæmorrhage of a primary laceration of this important organ. Genito-urinary specialists have reported the thoroughness of their cures attested by the successful deception of newly made husbands.

We personally have little sympathy with the idea that such deceptions are smart, nor even with the "fair-play" argument that the same laxity of morals should apply to women as to men. In the first place, society ought to level upward, not downward, and the wrong of feminine unchastity added to that of masculine unchastity does not make a right. In the second place, while deprecating the lax standard of masculine morals, the legal and social conditions of marriage on the one hand, and the physical and social circumstances attending procreation and child-bearing, on the other, clearly impose a greater obligation on the woman than on the man, in this regard. This, it must be understood, is quite distinct from the purely moral standpoint that each sinner must be judged without reference to sex, or the sentimental view that women are more sinned against than sinning, and that they should be judged more leniently than men. We must also be guided by certain cold social facts: namely that, at present, the moral requirement for men, in its social relations, cannot be brought up to the ideal standard and that the present high theoretic standard for women cannot be maintained as an actuality unless the customary penalties are imposed for overt violations.

The relation of the medical profession to contemplated marriages, is necessarily restricted to disease, actual or suspected, including pregnancy as a disease, as, indeed it must be from every practical medical standard. As a friend or simply by virtue of the high standing of his profession, the physician may also exert an important influence upon marriage laws and customs, and he may be appealed to as councillor or judge, but this is apart from his direct professional responsibility.

For present purposes, the diseases bearing upon marriageability may be divided into three groups: (1) Those which simply affect the general health of the individual; (2) Those which are more or less communicable; (3) Venereal diseases which must be considered not only as communicable diseases, but as an index of the morals of the individual. There is often a strong temptation, not only to consider pregnancy as a disease—and it is really one of considerable seriousness and mortality—but to classify it as a venereal disease. However, as there is obvious objection to such a classification, we may add to the three groups of diseases proper, pregnancy, present or past, and any other evidence of sexual activity, normal or perverted, of which the physician becomes aware in his professional capacity.

In all of these cases a humane physician must realize that he owes a duty, not simply to his immediate patient, but to the other party of a potential marriage, to the offspring and to the community generally. How far this duty should be allowed to conflict with the selfish interests or desires of the patient is a problem of great difficulty, especially when the physician is bound by ties of blood, friendship or pro-

fessional relation, to either party of the prospective marriage.

The problem will be simplified by considering first those instances in which there is only a pathologic objection to marriage. Often vicious neurotic strains and general incapacity for married life, either in the sexual or economic sense, obviously render one or both parties utterly unsuited for marriage, and, in such cases we must also consider the fate of the offspring. While it is a sin against the State, to allow the marriage of a person with insane tendencies and while invalidism without special tendency to hereditary disease, almost necessarily implies unhappiness, social wrong and sickly children or none, marriage is too much controlled by sentiment to admit of satisfactory legal control or even of influence by personal advice in the interests of healthy propagation.

In one of the writer's cases, without advice on this point, a delicate, neurotic girl, realizing her own incapacity, deliberately committed suicide, and while such an act is most deplorable, we cannot but admit its practical advantage to the race. In another instance, a prostitute traced her downfall to her husband's impotence, which was not absolute. While, of course, such a woman illustrates a low type, she was of respectable family, of early good morals, and, doubtless, under normal circumstances would have remained a reputable member of society and would have made a good wife and mother. In the case of men, analogous cases are too numerous to mention, and as we cannot justify extranubial intercourse simply because passion cannot be satisfied in a way approved by society, such tendencies must be frankly recognized and, so far as possible guarded against.

All things considered, the physician may feel that he has done his duty if, in cases in which a patient is obviously unfitted for married life but has no communicable disease, serious warning be given to the patient himself or herself, or, under certain circumstances to the patient's family. At the risk of censure, we would add that the prevention of conception should be advised if, for any reason, mentally or physically defective offspring are to be expected.

So far as they are related to marriage, communicable diseases involving no moral consideration are almost entirely confined to tuberculosis and innocently acquired syphilis and gonorrhœa. We must remember that extra-genital chancre may involve the venereal factor even in an aggravated degree and that, conversely, genital disease may be acquired non-sexually or sexually in a previous marriage.

In such cases the danger to the non-infected party, the exacerbation of the disease in the infected party and the danger to offspring and the offense against society, render the marriage highly undesirable. The problem is often extremely complicated, as when both parties are infected, with the same or different diseases, when special reasons exist rendering fertility of personal or family importance, and when the victim of an innocently acquired venereal disease is ignorant of the nature of the trouble. When the infected party is obdurate as to acquainting the other party with the facts or when both insist upon marriage, in spite of warnings, one naturally feels that the law should intervene, and yet, under present conditions, it cannot do so successfully. Personally, we should feel justified

in applying to such cases the same rule that we should to a patient with typhoid or variola who insisted on spreading infection by violating principles of quarantine, yet we can see many reasons for adhering to the principle of privileged communications, in spite of opposing interests.

Cases involving the moral factor may or may not involve pathologic problems. One of our profession has publicly exposed his grievance at the discovery that his wife was a sexual pervert. Some degree of sexual perversion may be considered fairly common in the matrimonial state. We happen to know of a woman recently married who regarded her duty to preserve her virginity, only in the most literal anatomic sense. On the other hand, many girls who are not virgins have been seduced or raped at an early age or under circumstances which really do not affect their character. Many men demand virginity on the part of their brides so insistently that they would not marry a widow. Others require little more of the woman than the woman can usually require of the man. Some women have no true appreciation of virginity, but hoard it in the same spirit that they would any other asset and, once married, or especially when widowed, seem to feel no obligation as to chastity.

It is a problem of tremendous importance how to balance the sanctity of professional confidence against the duty which the physician owes to the community, to other patients than the one immediately concerned, perhaps to personal friends or even near kin. It is by no means inconceivable that the physician may be in possession of professional secrets which he is supposed to preserve when, by so doing, he is allowing a loathsome infection or a black dishonor to be fastened upon his own daughter, son, sister or brother. In such a dilemma, should he be expected to maintain the attitude of the Spartan judge? The latter, at least, condemned a guilty, not an innocent victim. We confess to being unable to say how we should decide such an issue. But one dictum appears to be just: The duty of physician to patient should not be interpreted so broadly as to render the former an active accessory in bringing about a marriage that involves reasonable certainty of infection of an innocent party or that involves the element of gross fraud and trespass upon personal honor. At most a privileged communication should silence the witness who could best prevent such crimes against humanity. *

SURGERY AS A VAUDEVILLE SHOW.

To the Editor of the MEDICAL TIMES:

In the March number, under the heading "Surgery as a Vaudeville Show," you mention Doyen of Paris as having "presented moving pictures before scientific societies," and further as having "brought suit against photographers for reproducing the views without his permission," recovering damages, etc.

It does not seem to be understood in this country that Dr. Doyen is a sort of outlaw. The medical faculty looks askance at him, and his assistants and followers form a group of satellites that are such for profit. He is not denied ability as a surgeon, but is held to lack some of those ethical qualities without which surgical skill may become a curse rather than a boon to society.

I spent the winter of 1905 and 1906 in Paris, and

during that time the moving pictures were on exhibition in the book-shops of the Quartier Latin, with the tempting sign surmounting them: "For Doctors and Medical Students Only." They were machines that operated by a hand crank, fast or slow, as you pleased, exposing a series of photographs of Doyen in all his glory. They would have some educative value in their proper place, but, practically on the street, they were for advertising purposes, and nothing else. I was informed that they had been on exhibition a long time, but I never heard of Doyen taking any action against it. The suit you refer to was probably brought when some one else began to make money out of them. "L'argent, l'argent; voila tout" (money, money; that's all) said a young surgeon of some eminence when I asked him about Dr. Doyen. Let a great surgeon dismiss a patient with money as a case inoperable, and in some mysterious manner he soon turns up on Dr. Doyen's table, and, if he manages to get off of it with any breath in him, public and private channels are congested with the news of a marvelous cure.

The attitude of the medical faculty toward Dr. Doyen has long been a subject of joke among the medical students and hospital internes.

An artist has depicted it in a delightful cartoon which adorns many a student room and hospital salle a manger.

Doyen stands beside his operating table, on which lies a pretty girl clothed in stockings and patent leather boots. She looks right at you with a smile I cannot describe, but you can see that she is just tickled to death. Doyen is posed as an instructor, smiling, pitying, superior, and back of him is a perfect battery of kinetoscopes, phonographs, cameras, cinematographs, storage cells and what not. Ranged before him, in various attitudes of wrapt and wondering attention, are the great surgeons of the university faculty, bearing instruments or pathological specimens, which are badges of their several specialties or the fads they are cultivating.

The cartoon is mightily well drawn and inimitably French. The first time you see it you go right off and buy one for two francs, fifty centimes.

The caricatured laugh as heartily as any at it, for they are "gentlemen unafraid," and seldom mention the much advertised Doyen, but they probably think with the irresponsible youngsters in their mouths he is "the surgical buccaneer."

CHAS. V. BURKE, M.D.

March 20, 1907, Newark, N. J.

ANATOMICAL NOMENCLATURE.

To the Editor of the MEDICAL TIMES:

Dr. Lewellys F. Barker's English version of the Basle Anatomical Nomenclature, reviewed in the April issue of your esteemed journal, contains praises which are in many ways deviating from facts established by two criticisms, given by me, of the original. I regret that neither the author, Dr. Barker, nor your reviewer has been aware of my remarks, and I beg to repeat the same. The first criticism I gave in a paper read before the German Medical Society of the City of New York, February 3, 1896, and the contents of this paper are included in the first chapter of my book, "Christian Greece and Living Greek." I said the German Anatomical Society in offering this new anatomical nomenclature (which Dr. Barker calls by a hermaphrodite term "terminology") have not fulfilled their promise

to give all words in one language—in Latin. In reality most words are, and it could not be otherwise, Latinized Greek, or they are hybrid words; in some of them, of more than two syllables, we find the syllables alternately from the one and the other language. Any one who gives a glance at this new nomenclature cannot fail to notice barbarisms in large numbers. The anatomists have undertaken a thing which was an impossibility—namely, to develop further a dead language, to treat a dead language as a living one. Had the committee, however, taken the living Greek for a basis, had they made use of a Greek work on anatomy of the present time, had they consulted real Greeks, they would have fulfilled all their promises, executed all their intentions, without the arduous labor of seven years and the expenditure of quite a sum of money, as enumerated by them.

The second criticism I gave in a paper read before the Book and Journal Club of the Johns Hopkins University, February 19, 1902, and this paper has been published under the title "Greek in Medicine," in the Johns Hopkins Hospital Bulletin, May, 1902. Here I said: "The German Anatomical Society appointed a committee and raised the necessary funds, about three thousand dollars, from contributions by different medical academies to furnish an onomatology with all names in grammatically correct Latin. *All names in Latin!* The members of the committee were all prominent German anatomists and thorough classical scholars; they worked hard for seven years; thus they conducted an immense amount of correspondence and had many meetings in Munich, Vienna, Goettingen, Strasburg and Basel; their sessions in Munich, for instance, commenced at 8 a. m. and lasted until 6 p. m., in Vienna even until late into the night. In the year 1895 the new anatomical nomenclature—*Nomina Anatomica*—as the title is, was published, etc."

In numerous other papers especially "Medical Language," Post Graduate, February, 1906; "Barbarism in Medical Language," N. Y. Medical Journal, March 2, 1907; "Aetiology, Pathology and Therapy of Medical Slang," American Medical Compend, February, 1907, I have demonstrated the cause of the failure of the would-be reformers of medical onomatology and have also shown the only way to correct the evil of unscientific onomatopoeia. Professor Sakorrhaphos, M.D., of the University of Athens, in a well-known article in No. 52, 1906, of *La Semaine Médicale*, has confirmed all I had said—without having ever read my publications on the subject. I have only glanced at Dr. Barker's edition, but as mentioned already, I saw that he has added a hermaphrodite name to the title and that he has retained incorrect, misleading terms of the original which would cause hilarity among the Greek schoolboys. I invite Dr. Barker, or any one who doubts my statements, to come out publicly and contradict them, if he is or believes to be able to do so.

126 E. 29th St., New York.

A. ROSE.

Glanders in the human subject is discussed by Pilcher (*Ann. of Surg.*, Mar., '07), who presents two cases. In one the infection occurred through inhalation; in the other through a scalp wound. In both the striking feature was that the degree of prostration was greatly out of proportion to the physical signs. The larger joints were early involved.

RETROSPECTIVE

Cytodiagnosis in Tuberculous Children. C. M. Greco describes his own technique (*La Pediat.*, June, '06). The vesicant used was Erba's 4 cm. square, applied for from eight to twelve hours, preferably to the subclavian region. He concludes: The percentage of eosinophile cells, either before or during the action of the blister, as also in the serum of the blister, is in inverse proportion not only to the intensity of the infection, but also to the resistance of the organism, and the duration of the application. 2. Children afflicted with tuberculosis of the bones and joints, if they are free from fever and well-nourished, exhibit a relation between polynucleated eosinophiles and neutrophils of the blood and of the fluid of the blister quite similar to that of healthy children. 3. Polynucleated neutrophils and eosinophiles are always in inverse relation between themselves with regard to the tubercular infection as if showing the compensating power of the hæmatopoietic organs; but especially of the bone marrow, which responds with an excessive production of polynucleated neutrophils when, owing to the severity of the infection, the eosinophiles are diminished. 4. During the period of amelioration in a tubercular infection the percentage of eosinophiles is greater than at the commencement; the reverse is the case with the polynuclear neutrophils. 5. The cells of the blister are evidently of epidermic origin, being in larger quantity in the fluid extracted after the destruction of the bleb than in that drawn off by aspiration with a Pravaz syringe. 6. The experiment by the blister has no diagnostic value in infantile tuberculosis; it is merely prognostic as indicating the grade of resistance of the organism. Examination of the blood itself, especially of the eosinophile elements, can more usefully be substituted for cytodiagnosis. Eosinophile cells are found in the blister liquid, owing to positive chemiotoxic action of the products of destruction of the epidermic cells; they are diminished in the blood during the action of the blister by the paralyzing action that cantharides exerts on the activity of the bone marrow.

Iodism is dwelt upon by Pouchet (*La Clinique*, Nov. 16, '06), who understands by that term a group of toxic phenomena induced by the administration of iodides. Toxic doses of iodine induce an exaggerated transudation of the liquid blood elements, such as is facilitated by certain accessory conditions—concentration of the solution employed, rapidity of absorption and slowness of elimination. The final reabsorption of the transuded liquid would account for the disappearance of the toxic phenomena. Here, however, we must reckon also with the individual's susceptibility; for the intensity of the toxic effects is not always comparable with the amount of iodine administered. There are two distinct kinds of phenomena displayed. One set is localized and due to direct irritant action; the other is generalized and results from the dissemination of iodine throughout the body. The commonest evidences of iodism are a catarrhal condition of the nasal and orbital mucous membrane, with more or less violent headache; the conjunctivæ may also be red and œdematous. These phenomena are grouped by Pouchet under the term "*coryza iodigne*." Sometimes there is also a little fever, due, no doubt, to the catarrh. There is a metallic taste with increased flow

of saliva. Skin eruptions are frequent with iodism. Acne is most common, but urticaria, papular and bulbous rashes are also found. Some anorexia is present; nausea and vomiting may occur; there are often severe epigastric pains; diarrhoea or constipation may exist, as also a pulse accelerated, feeble and easily compressed. Respiration is generally but slightly affected; and there may be dyspnoea and even asthma and stridulous laryngitis. Oedema glottides may occur, while hæmoptysis is common in tuberculous subjects. The kidneys may become affected, especially in women and children; in the latter albuminuria may follow simply upon painting the skin with iodine. Nervous symptoms are frequent—headache, apathy, prostration, faintness, sensory disturbances and even delirium. Pouchet notes the effect of iodides on glandular organs, especially the testicles, ovaries and mammae. The autopsy in the only case of iodism he can find recorded reveals congested kidneys (especially the medullary substance, the cortical epithelium appearing to be healthy). Before death a small amount of albumin appeared in the urine; the cerebro-spinal system and the heart and lungs (except for a slight hypostatic congestion) appeared normal.

The Sanitary Condition of the Japanese Empire bears favorable comparison with that of European countries, and is constantly improving, declares Dr. Lowenthal (*Revue Scientifique*). If Brouardel is right (as undoubtedly he is) in saying that the most characteristic and trustworthy sign of advanced civilization is the rarity of infectious diseases, Japan must certainly take rank among the most enlightened nations. Deaths from smallpox are now far less common in Japan than in either France or Russia, although formerly the disease made dreadful ravages throughout these islands. There has also been a marked increase in school attendance, and in the sums expended for education. Russia is far behind Japan in this respect; in the former country 190 out of every million are sent to the superior schools; in Japan 300 in every million have a superior education; 553,540 out of every million attend the primary school in Japan; while in Russia there are but 120,000. In elementary education Japan spends proportionately to her population twice as much as Russia does. The Japanese population also increases far more rapidly than does the Russian. Dr. Lowenthal sanely observes that if the Russians had been better informed concerning Japanese resources, they would not have gone into the late war.

Non-Tuberculous Chronic Arthritis. The treatment is discussed by Locke and Osgood, under the heads of villous, infectious, atrophic and hypertrophic arthritis. The first is not properly a distinct affection; it may follow trauma or may occur without discoverable causation; it may accompany the other forms as part of a symptom complex. The infectious type includes those joint affections supposed to be due to some chronic infection in the blood; in this group the articular cartilages are less likely to show marked changes than in the two following ones. Atrophic arthritis is characterized by atrophy of joint structures, together with debility and general constitutional disturbance; many of the cases of "rheumatoid" arthritis are of this type. In the last of these types there is a hypertrophy of cartilage and bone with less constitutional disturbance than the others, if any at all; the osteo-arthritic types are here included. The treatment is both general (the more important, as a

rule); and special. All abnormal conditions must be sought out and remedied. The general health, physical and mental environment, and all local foci of disease must receive attention; and the diet, exercise, dress, etc., regulated. Physical treatment includes hydrotherapy, hyperemia, counter irritants, massage and motion, active and passive—the substitution of these for drugs is the secret of much present-day success in the treatment. Hyperemia is most important. If conservative methods fail in cases of villous arthritis, radical steps must be taken. In the infectious type the prognosis is better, and improvement under good treatment is often rapid. Active and passive motion should be instituted early to correct the tendency to atrophy and fibrous ankylosis. Operative treatment may be essential. In the hypertrophic type, on the other hand, passive motion, unless employed with the greatest care, may do harm; the principle to be followed here is rest. Mechanical support may also palliate the symptoms. The local treatment is less effective, because of the tendency to bone proliferation and ankylosis. The results in any case will depend largely on early diagnosis and persistence in the treatment. In old cases we may relieve; but we can hardly hope for a complete cure.

The Liver in Heart Disease. Salaman, (*Lancet*, Jan. 5, '07) finds that under conditions of cardiac distress the liver will draw off a large volume of blood from the right auricle. After a time changes will take place leading to fibrosis, very materially affecting the distensibility of the liver. This fibrotic process, by increasing the force of the liver's recoil, prevents the use of the latter as a reservoir for accumulating blood. In complete compensation there is no engorgement of the liver and no back pressure. While the liver may be looked upon as a sponge-like safety valve to the heart, continued use of this safety valve leads to its own abolition. The liver may directly or indirectly cause three kinds of pain: referred superficial tenderness consequent upon extreme distension of that organ; tenderness on palpation of the liver itself; the liver itself is painless, but the whole abdominal surface is tender on deep pressure, due to distension from ascites and peritoneal irritation. With the onset of cardiac distress the liver comes to the rescue and enlarges up to its physiological limits without giving signs; then, as enlargement exceeds this limit, referred pain appears. When the blood thus drawn off in the fully distended liver is insufficient to relieve the heart failure the blood is thrown back in the inferior vena cava, and oedema of the feet results. If the heart is relieved and the liver allowed to disgorge some of its blood and to return to the limits of its physiological safety valve action, the oedema disappears.

The Aetiology of Infantile Paralysis is probably infective, declares Still (*Clin. Jour.*, July 25, '06), although no bacteriological proof has as yet been educed. Still bases his belief on the following grounds: First, the age incidence—the disease occurs, as a rule, within the first three years of life, a period during which the nervous system is liable to infections, as is evidenced by the occurrence of posterior basic or cerebro-spinal and tubercular meningitis at that time. Second, the seasonal incidence; most cases arise between June and September, though possibly light, temperature and barometric pressure may influence the seasonal incidence apart from any infective agent. Third, the oc-

currence of epidemics, though cases occurring in this way sometimes differ from those arising sporadically; the death-rate is liable to be high, signs of cerebro-spinal meningitis may be present and *complete* recovery is not uncommon in such cases. Fourth, the relation to specific fevers. Infantile paralysis may occur during or immediately after a specific fever, and there is a well-known tendency for one such disease to follow another in childhood. Typhoid fever and possibly other acute illnesses, however, may favor thrombosis; and this lesion, together with scattered hemorrhages and exudation of small cells in the anterior portions of the gray matter were found by Batten in a case which died thirteen days after the onset. The relation of the disease to specific fevers may, therefore, on the other hand, support the idea of a primary thrombosis, which is further favored by those cases in which traumatism seems to be a determining factor, though it must be admitted that injury may act by lowering the resistance to an infective agent. The occurrence of some vascular lesion, obstruction or hemorrhage is again further suggested by those cases in which paralysis comes on with a sudden, perhaps instantaneous onset, as when a child is running across a room, or awakens from sleep paralyzed, having been put to bed apparently healthy. The cause of the disease is, as noted, at present unknown, the evidence being considerable that it is an infective microorganism. He has repeatedly observed the pulse of his guide, a man of 46 years, and has always found in him a marked acceleration, although this mountaineer has constantly made ascents with tourists. Will power, in the case of persons unused to a little danger, may control to some degree these factors of dyspnoea and increased pulse rate. The principal cause of these factors in normal people is lack of training. Travelers unaccustomed to mountainous regions had best live for a time in perfect quiet; and must then begin with short walks. Even the young and vigorous often become very much fatigued by the bracing air at great heights. The most distressing feature of climbing are the gastric symptoms. Thomas believes that the true source of mountain sickness is the auto-intoxication coming from fatigue; and this can be in great measure prevented by proper diet. Guides are here not the best advisers; their own digestion cannot be compared to that of city folks. One must know for himself his own ability to digest certain foods. There are no hot meals and this is decidedly a discomfort; although by carrying solidified alcohol one can often prepare hot soup or hot tea. Every violent exercise diminishes the appetite and renders digestion less rapid—so that one had best eat little and often. It is remarkable how little food one needs in mountain climbing. Mental effort is impossible in the course of an ascension.

Laparotomies and Their Management. Boldt believes that no special preparatory treatment is necessary for an abdominal operation, unless the stomach or the bowels are to be opened. Gastric lavage is of benefit at the conclusion of the operation. Patients should not be kept unnecessarily under an anæsthetic. A bandage should be placed tightly around the upper part of the thighs, in exsanguinated and very weak patients, to keep a blood reservoir in the lower extremities; in exceptional cases the same may be done with the upper extremities. These bandages are removed immediately upon completion of the operation

—and thus more blood is thrown into the trunk. Strychnine should be used with more care than is usual. The intravenous infusion of a 0.9 per cent. saline should not be too long delayed. In cases of large myomata, where the patient has been much exsanguinated by bleeding, the infusion should be begun as soon as anæsthesia is complete; so that 1,000 to 1,500 c. c. may have been infused before the completion of the operation. The application of a very simple dressing over the wound, and the adjustment of a snugly fitting Scultetus bandage made of oxide of zinc plaster; morphine if pain or restlessness demand it—this drug then acting as a heart stimulant; a regular diet and unrestricted mobility *within twenty-four hours*, unless specially contraindicated (Boldt's radical views in this respect are well known); the getting patients out of bed as soon as possible after an operation; the avoidance of forced catharsis before the first four or five days after an operation, unless there is a special indication for it. When resort to vaginal drainage is had, or where evidently there will be some secretions intraperitoneally after an operation (perulent cases, and oozing from torn adhesions) the trunk should be elevated as soon as the patient is put into bed. For this a bed lifter (described in Boldt's paper) may be used; or high blocks or chairs under the head of the bed; these means are preferable to back rests.

Exercise and Its Dangers is the subject of a paper by Woods Hutchinson in the March *Harper's*. This always original thinker declares that civilized man is an animal much superior to any known tribe of savages, lives longer, resists disease better and is healthier and happier. Prolonged and fatiguing exercises taken only for the sake of "building up muscle" are distinctly dangerous, and the medical profession, Hutchinson rightly declares, is coming generally to regard college and high school athletics, as now practiced, to be a menace to the health of the community. Athletes are two and one-half times as liable to cardiac disease, 60 per cent. more to diseases of the kidneys, and 25 per cent. more liable to die of the three main infectious diseases of adult life. "So long as muscular effort is strengthening the heart and developing the nervous system and increasing the appetite it is doing good; beyond this it is physiologically valueless and often harmful."

The latest microscope is an "ultra-violet instrument," so powerful that it reveals germ and other structures hitherto unseen. It is hoped that the entire action upon germs of the agents designed to nullify their activity or destroy them utterly can be observed by this means. "Bacteria and molds with their secrets thus laid bare may now be inspected." Red is the longest light wave in the spectrum and violet the shortest. Ultra-violet light is invisible to the naked eye, though it can be detected by the photograph negative. Any microscope will make two points distinct if they are not closer together than a wave length of light. The new instrument, which is a Zeiss, requisitions a light so far beyond the violet that its length wave is only half that of ordinary sunlight; and two points can be seen twice as close together as by the ordinary microscope. In other words, its resolving power is twice as great. As glass of any kind is opaque to violet light, the lenses are made of pure porch crystal and the reflector has the silver on the front instead of on the back.

MISCELLANY

The brain of Prof. Mendeleef was, upon autopsy, found to weight 1,200 grammes, and to be remarkable for the number of its convolutions.

A tablet to Dr. George Ryerson Fowler has been unveiled in the main hall of the Seney Hospital in Brooklyn. It is a beautiful tribute to the memory of a great and most humane surgeon.

A Voice From the Dim Past.—A "long-term" convict, who was pardoned by Gov. Hughes, feebly expressed the duration of his imprisonment when he declared, on visiting this city, that he had never seen a skyscraper.

Farming for the insane is an excellent suggestion by W. E. Taylor, (*Charities and the Commons*), who sensibly believes that a thoroughly equipped and properly conducted farm will contribute more than anything else to the cure of the insane.

The unskillful use of the X-rays was earnestly deprecated at a recent meeting of the German Roentgen Society in Berlin; it was rightly declared inadmissible—as being dangerous to life—to permit unlicensed people to make diagnoses by means of these rays.

An illustrated cyclopaedia of American medical biography, states *American Medicine*, is being prepared by Dr. Howard Kelly. The work will include sketches of all the noteworthy medical careers of the United States and Canada from the earliest times up to the present day.

Three operations on the ear in tuberculous patients are called for. These are (Harland, *Laryngoscope*, Jan., '07): Incision through the drum membrane; removal of granulations and establishment of free drainage from the middle ear in cases of purulent discharge; mastoid operation.

The Urine and Pregnancy.—Frequent and thorough examinations are necessary, declares Norris (*Therap. Gaz.*, Feb. 15, '07), who believes that the physician should not neglect to study each case thoroughly, notwithstanding that he does not often meet with serious consequences.

No "mollycoddle" is President Eliot, who is to-day in better physical condition than the average man of thirty years. And in mountain climbing, rowing, or any other "gentleman's sport," the head of Harvard could probably come near to the best performance of the average athletic undergraduate.

Cheap Surgical Dressing.—*American Medicine* states that at a cost of 24 cents Japanese surgeons can dress the wounds of 500 men. They use a finely powdered charcoal obtained by the slow combustion of straw in closed furnaces. Sachets filled with it are applied to the wounds, and its antiseptic and absorbent qualities generally effect a rapid cure.

Five million dollars were bequeathed to the Pasteur Institute in Paris by M. Osiris. This assures a revenue of \$200,000 (one million francs), so that parasitic diseases may be exhaustively studied. A great step is discussed by Dr. Otto Höttsch in the New York Acad-taken toward the realization of the hope expressed by the great physician who gave his name to this institute. It is in human power to banish from the earth all parasitic diseases.

The Oldest Medical Society in the United States.—The Medical Society of the County of Westchester recently celebrated its one hundred and tenth anniversary by a dinner at the Hotel Astor. Dr. H. Beattie Brown presided, and the feet of one hundred and twenty-three Westchester physicians found place under the mahogany.

An Honorable Guarantee.—The Tri-State Packers' Association, at its annual meeting at Wilmington, Del., adopted a guarantee that all the goods packed by its members shall conform to the standard of the pure food law. It also favors pure food laws in New Jersey, Delaware and Maryland, the three States represented in its membership.

Laughing is immoral, declares a London literary critic. We physicians consider it an excellent aid to digestion; shall we then, asks an exchange, be morally dyspeptic or immorally happy. Besides, laughter is, with sleep, one of our most valuable therapeutic agents. We are fast reaching the conclusion that there is a whole lot of morality which is downright sinful.

Hormones is a general term meaning to "arouse," or "stimulate," which is now quite frequently used in medical literature to indicate substances formed in one tissue or organ for the purpose of stimulating another tissue or organ to which they are carried in the blood stream. As for example: secretions of the intestines, thyroiodin and ardenalin (*J. A. M. A.*). The internal secretions of the ovary and testicle are presumably of this nature. Not all internal secretions, however, are hormones.

Another Woman Ambulance Surgeon.—Dr. Emily Dunning was not long ago graduated from Gouverneur Hospital; unquestionably the first woman ambulance surgeon of our city, her example is now to be followed by Miss Mary Crawford, a Cornell medical student who has, in a competitive examination, earned an internship in the Williamsburg Hospital. The superintendent of the hospital believes the services of a woman interne will be very valuable; she is sure to be gentle, "and in many cases is called upon to perform duties that a woman can do best."

The stomach tube should be employed for diagnostic purposes to determine whether the organ has retained food at a time when it should be empty; therapeutically, to evacuate in cases of poisoning, of insufficient motor power, of chronic gastritis, of hypersecretion, and to introduce food and medicaments in appropriate cases. Its use is dangerous in gastric ulcer or advanced neoplasm. It is useless in temporary digestive troubles, in gastric affections of nervous origin, in neurasthenia and in moderate gastrointestinal atony without retention or stagnation of the food.

The relation of nasal and accessory sinuses to the eye is important and often overlooked. Stucky finds that not enough attention is paid to the acute form of nasal accessory suppuration, nor is its early recognition fully appreciated. Many cases of paresis and paralysis of the extra ocular muscles, supposedly due to rheumatism or to syphilis, are caused by spheroidal or ethmoidal disease. Stucky has seen one case of ophthalmoplegia external (*Laryngoscope*, Jan., '07), in which Killian's operation gave complete relief. The eye symptoms vary as much as do the size, shape and position of the sinuses. Stucky believes the oculist and the rhinologist should maintain "a closer relationship"; why not?

MORBID INHERITANCE.

BY ROBERT HOWLAND CHASE, A.M., M.D.

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THE facts concerning heredity are very fully recognized by all writers on insanity, and also the importance they assume as an etiological factor in mental diseases. Our present purpose is to review these well-established truths and concisely to set them forth as clearly as may be in limited space.

The transmission from parent to offspring of certain physical and mental characteristics is known as physiologic heredity. This phenomena invariably takes place through the egg and sperm, and on this account the peculiarities of inheritance can be due alone to the peculiarities of the germ cells. The male and female germ cells, although apparently very different, are essentially alike. Hence the blood of inheritance is not a single stream, but a blended one from both sides of the house. The characteristics of parents blend in the offspring, so as to result in qualities which were not possessed by either of the parents. The inheritance so transformed (variation) is regarded a true transmission in equal degree to the qualities passed on to the child without change. Hereditary likeness or repetition is the most common variety of inheritance. It is often recognizable in gross and in minute anatomical characters, such as the form, structure, location, size and color of each and every part. The child may inherit the qualities of one parent only, or partly those of one, and partly those of the other. It may show the father's characteristics at one stage of life, and at another time the traits of the mother. Sometimes the prepotency in one side of the family is so strong that certain mental qualities or physical features are persistently handed down in spite of unfavorable conditions, so pronounced as reverses of fortune and constant crossing by marriage. It is a common observation that certain characters of eyes, nose and lips run in families, as well as stature, weight and complexion. The same may be seen in respect of left-handedness, near-sightedness, and the tendency to bear twins and triplets. In some families all of the male members grow bald at the same period of life, while other families in like manner take on flesh. There are short-lived and long-lived families; some in whom the powers of endurance are strong and in others may be remarked dominant mental powers that are exceptional. (Conklin.)

Between physiologic and pathologic transmission there is a fundamental difference. The authorities seem agreed that diseases are not directly inherited. It is a well established principle in medicine that function in the animal economy chiefly depends on structure; it is on this fact that morbid inheritance is based. When an individual is affected by a so-called "inherited" disease, it is not the inheritance of this disease with which we have to deal, but rather a tendency or predisposition to it. In other words, it is not that the special pathologic characters themselves which are transmitted, but a predisposition by the result of peculiar anatomic or physiologic traits which favor certain diseases. The morbid influences, acting on the germ-plasm and germ-cell, tend to break the continuity of physiologic inheritance and to create new characteristics, which being abnormal, are less in harmony with the environment and consequently hamper the individual in the struggle for

existence. This weakness is manifested usually by a morbid condition of nutrition, a feebleness of development and certain functional incompetencies. This vicious state is capable of engendering under unfavorable influences the diseases which are generally regarded as hereditary. If diseases such as congenital syphilis, epilepsy and tuberculosis are transmitted from parent to offspring be not due to the transmission of a peculiar anatomic structure which favors the disease, then it can be only due to the infection of the germ or embryo by microbes. From the very nature of the case this would make the process one of infection and not a transmission. This special predisposition, which is a morbid hereditary deviation from the normal type, whether grave or light, is always associated with a corresponding change in some function of the nervous system. This change in nervous function has received the name of degeneration and the subject of it is called a degenerate.

In morbid inheritance, the diathetic and nervous conditions are seldom transmitted in the same form from parent to child. The morbid basis persists and it alone is transmitted. The psychoses are transformed usually in each succeeding generation and may be different in members of the same family. This is known as dissimilar or transformed heredity. In a certain number of cases the psychoses are transmitted by heredity in the same form from parent to offspring. This is known as homologous or similar heredity. When the heredity is attributed to parents it is called immediate; when observed in branches of the family, it is collateral; when on the side of both parents it is then double, or from convergent factors. When it is from one parent it is simple heredity, either paternal or maternal. According to some authorities, the latter is the more serious of the two; it is also three times more common. When it has existed for many prior generations it is called cumulative heredity; when it becomes more and more intensified by transmission it is said to be progressive; if it is alleviated by a series of fortunate crossings it is regressive. When the hereditary psychosis appears at the period in life that it occurred in the parent it is called homochronous. When it appears in the child before it is seen in the parent it is called anticipatory. The tendency to the reappearance in the descendants of the heredity, which has been latent for one or sometimes two or more generations, is an extremely common form known as atavism. The latent character may rise to the surface by the union of an individual in whom it is dormant with another person in whom it is potential. It denotes the occurrence among collateral relatives of certain morbid peculiarities similar to those which occur in the parent stem. Strictly speaking, collateral heredity has not any significance apart from atavism. (Macpherson.)

In any of the above ways abnormal tendencies pass from ancestors to descendants; but the appearance of abnormal qualities, owing to a defective power to transmit perfectly normal characters or functions, is the true explanation of pathologic inheritance. Degeneration, then, is the dissolution of normal heredity, and in its ultimate stages it ends sexual heredity by imposing sterility on its more advanced subjects. The spermatocytic and ovarian cells, crippled in their power of development, are unable to promote evolution along ancestral lines. Hence the various arrests in development, the

various malformations of the body, and disordered functions of the nervous system (physical and mental stigmata) as well as the diminished power of resistance of the nervous system, which, being badly balanced, readily succumbs to all external factors of an unfavorable kind which act on it.

Temperament may be defined as the special type of mental constitution and development due to natural characteristics of the bodily organism, often inherited such as the bilious, nervous, sanguine, etc. Diathesis, on the other hand, is a bodily condition (inherited or acquired) by which the individual through a long period, or usually throughout life, is prone to suffer from some peculiar type of disease, such as the tuberculous diathesis, or the gouty diathesis. The insane diathesis is a brain deterioration, inherited or acquired, indicated by peculiarities of function, by tendencies to mental disorder, and often associated with bodily stigmata—peculiarities of physical development. The insane diathesis is primarily based on an abnormal irritability and excitability of the brain, with irregular evolution and unequal development of its function. The insane diathesis may be latent and is found in persons of neurotic constitution, who, without observed evidences of the diathesis, transmit it to their offspring, or become insane from very insufficient causes. The non-development of the diathesis in these cases may be due to favorable conditions of life or to the activity of another diathesis. The most common example of this is seen in the substitution of phthisis pulmonalis for mental disease.

In writing of hereditary degeneration, a prominent authority says: "Insanity is not a chance occurrence, like a nasal catarrh or an accident, or like an attack of typhoid fever to which all men are liable. There are certain necessary preceding conditions, one of which is essential, namely, that the brain of the subject must be predisposed by heredity to mental breakdown. There are, it is true, other causes which may invalidate a previously normal brain and predispose it to insanity, such as alcoholic over indulgence, traumatic injury, and some physical diseases; but," he adds, "such causes are comparatively rare. It may, therefore, be generally stated that in order to become insane a person must inherit a vice of organization."

Heredity, in mental alienation, seems to assume several types. The chief ones are: (1) vesanic heredity, or the heredity of pure insanity; (2) cerebral or congestive heredity, the tendency to cerebral diseases; and (3) neurotic heredity, or that of nervous diseases. All nervous hereditary diseases are transmutable in their transmission from one generation to another. The following classification is founded on the implication of heredity of the ancestors in its transmission to the descendants. (1) It may manifest itself only by trifling eccentricities, mannerisms, slight moral lapses, or mild cerebral neurasthenia; (2) by isolated attacks of idiopathic insanity (mania or melancholia), dependent on grave moral crises or physical deterioration; (3) by recurrent or alternating (folie circulaire) attacks of insanity independent of any exciting cause; (4) by systematized progressive insanity; and (5) by the appearance of hereditary insanity—insanity of the degenerate. (Regis.)

From what has been said, it may be seen that morbid heredity, according to this hypothesis, is not a positive

quantity, but a negative one. It is a failure in transmission of certain characters which results in an unlikeness to the type of the race and to that of the parent. We hold that the factor that is directly inherited is not insanity itself, but it is an instability of the nervous system, or a disordered arrangement of nervous tissue that is the basic weakness on which the insanity develops. We should look for the inheritable antecedents of insanity, therefore, not alone in insanity as revealed in progenitors, but in all diseases which display evidence of undue instability or disorder of the higher nervous arrangements. Thus, the nervous peculiarity which exhibits itself in insanity in the offspring may have become apparent in the progenitor, not as insanity, but as epilepsy, as chorea, as hysteria, as "nervousness" and fidgetiness, as somnambulism, drunkenness, or in some other form.

PROFESSIONAL—ESPECIALLY MEDICAL—EDUCATION.

BY A. L. BENEDICT, A.M., M.D., BUFFALO.

ACCORDING to statistics furnished by the U. S. Commissioner of Education, there are about 75,000 undergraduate college students in the country, using the word *college* in the usual sense and excluding students in engineering, musical, architectural, and various other professional courses, whether included in the so-called literary or collegiate departments or in separate professional schools, as of law, theology, medicine, etc.

It is interesting to note how many of the population are now getting a college education. According to the statistics of the Census of 1900, the proportion of the population constituted by persons of any given age between 15 and 30, changes very little, on account of the slight mortality at these ages. For any four-year period at the college age, we must count 7 per cent. of the total population. The total population of the United States, exclusive of the "possessions," is about 76 million, so that the population of college age is 5,320,000. About 13 persons, men and women are, therefore, actually getting a college education in every 1,000 of suitable age. That the ratio has not long been so high as this is shown by various statistics. For example, in a population of about 400,000 (Buffalo) a fairly careful canvass has shown that not over a thousand are eligible to membership in a club which requires a college degree, including an engineering degree.

From the purely economic standpoint, the matter of collegiate and professional education is of interest. A surprising number of men and women take post-graduate courses, leading to masters' and doctors' degrees (not, of course, in this sense, including professional doctorates). For example, in 1903, 14,002 baccalaureate degrees were conferred and 1,728 masters' degrees, not to mention higher degrees in semi-professional studies and the doctors' degrees, which very few receive. Of course, many masters' degrees are still given a few years after graduation, without any definite requirements, but the tendency is increasingly against this policy, and it is certain that approximately a thousand persons a year complete a course of study extending, in purely educational lines, five years or more beyond the high school course. At any rate,

there were in 1903, 114,130 persons in the United States engaged in study in the various universities and colleges of the country, exclusive of those attending professional schools in the technical sense and as compared with about 72,000 collegiate undergraduates. There were also 61,871 students in the professional schools of theology, law, medicine, dentistry, veterinary medicine and pharmacy. That 176,000 men and women between the ages of 18 and 30, including also a considerable number as to whom no information is available, of still maturer years, are annually engaged in studies not leading to directly productive occupations, is in itself a considerable burden for any country to carry, although it would not be safe to conclude that this burden is carried unwisely. It is a conservative estimate that the average individual of this group has an earning capacity of \$800, that his family spend \$500 in his maintenance and that public and private philanthropy furnishes at least \$200 additional, making the total cost \$1,500. This represents a per capita tax on the whole country of very nearly \$3.50. In so far as any individual student benefits by the education and becomes a more useful citizen, this tax is well worth while. But to the extent that the opportunities are neglected or are placed before those not best adapted to use them and in so far as superfluous men enter into the professions and men who ought by every rule of heredity to be doing common manual work, are hoisted into places for which they are not fitted, this tax is simply a suggestion of the tax ultimately placed upon society.

Of the 75,000 college students, very nearly 1-3 are women, and a slightly higher proportion, but still a trifle under 1-3, complete the course and receive degrees. For 1903, 9,349 men and 4,653 women received baccalaureate degrees, exclusive of those in technical and artistic branches.

It is, with present statistics, impossible to know how these college graduates are distributed among the professions, and businesses. Practically all teachers in colleges are themselves college graduates. Nearly all male high school teachers now have the same education and a great many grammar school principals. We find the college man represented in all businesses and in journalism and other professions not included in the statistic study of professional education. We still speak of theology, law and medicine as the learned professions, but with very little basis in fact, so far as a general education is concerned. The statistics of 1903 are as follows:

	Total students.	Women.	Graduates.	Women.	% graduated total students taken as 100%	% having literary degrees.	Number of literary degrees among graduates.
Theology.....	7872	166	1545	35	21	28	439
Law.....	14057	153	3492	37	24	17	598
Medicine.....	27062	1280	5611	269	21	9	528
Dentistry.....	8298	140	2183	36	26	2	53
Veterinary.....	671	not stated	137	not stated	20	3	1
Pharmaceutic..	4411	216	1372	67	31	2	29
	61871	1955	14279	444			1646

The numbers in the columns showing women graduates and the numbers of college graduates in the professional graduating classes, are not obtainable from direct statistic information, but have been calculated proportionately to the entire number among the professional students of each kind. While there may be an absolute error in such a calculation, the result is an average which is even superior for such deductions as may be drawn.

It is very significant that, after a generation of effort toward placing women on an equality with men—instead of leaving them as men's conceded superiors—and after a general disappearance of the old prejudice against the higher education for women, remarkably few women enter the professions ordinarily so called. They form only a trifle over 3 per cent. of professional graduates and, as is well known but not subject to statistic evidence, many women physicians, lawyers and dentists do not practice. The only profession into which women enter in any significant proportion is medicine, where they compose about 41-2 per cent. of all members.

So far as college graduates are concerned, about 9 women annually enter and complete theologic studies, and the numbers for the other professions are: law, 6; medicine, 25; dentistry, 1; pharmacy, 11-2.

Supposing the professional schools to remain at the numerical point reached in 1903 for the next three or four years—and this supposition is warranted, not to consider inevitable slight fluctuations—the following partial accounting of the college graduates of 1903 may be made if, as is also highly probable, the same proportionate numbers enter the various professions and the standards of general education in the various professional schools are not changed by law:

Male college graduates in 1903 (A.B., B.S., B.L., etc.)	9349
Women college graduates in 1903 entering into competition with men.....	43

9392

Of the above, there will enter and complete

Theologic course.....	439
Law.....	593
Dental.....	53
Medical.....	528
Pharmaceutical.....	29
Veterinary.....	4

1646

It is obvious at a glance that, without a considerable increase in the number of men attending college or an equally great increase in the number of women entering into competition with men, there are not enough college graduates remaining to maintain the present rate of graduation of professional men and women, provided that it were legally required that such professional students should have a preliminary college education. We must also bear in mind that the professions of teaching, journalism, expert stenography, nursing and many lines of business require preliminary education of the highest kind, but are, for the present at least, not susceptible of regulation by required attendance at professional schools. No account is taken here of graduates in music, elocution, engineering in its various branches, etc., for the reason that such education, even when rightly considered as cognate with courses leading to the A.B., B.S., and B.L. degrees, naturally provides for the subsequent professional career of the in-

dividual. As has been stated, the country is already carrying a considerable, possibly an excessive, burden in furnishing college educations to about thirteen in every thousand persons of suitable age. The American ideal, which is fostered by educational methods, legal enactment and private philanthropy on a large scale, is to give every boy and girl a chance to get ahead of his fellows. We want to see every laboring man enjoying short hours and high wages, and we want to see his sons becoming clergymen, lawyers, physicians, or, at least, dentists or successful business men. Unfortunately, as is well illustrated in the comic opera, "The Gondoliers," Providence has not suited the conditions of life to such a state of society. We might just as well, from the sociologic, legislative and philanthropic standpoint, submit to the inevitable dictum of Genesis, that not only the average man, but every man, with some few exceptions, must earn his living by sweat-producing labor. There is a beautiful theory that a college education makes a man a better worker and a happier individual, as well as a better citizen, whether he becomes President of the United States, a minister, lawyer, physician, or a street car conductor, a hired man on a farm, a blacksmith or a miner. There is just one criticism to be passed on this theory—IT IS NOT SO. Broadly speaking, the country cannot afford to educate, beyond the grammar school, any boy or girl who cannot make practical use of such an education later. And, from the standpoint of the individual, any man who fails to reach the standard of usefulness and the degree of success implied in his education, is less happy and less serviceable than he would be without the economically wasted education.

It has been stated or implied that there are not enough college graduates to maintain the present number of graduated professional men, and that the country cannot afford to give a college education to more young men than at present. It is also claimed by many students of sociology and education that practically every clergyman, lawyer and physician should have a college education. Obviously, there is a discrepancy somewhere. Aside from a purely transient emergency, every nation can afford to train every worker to the highest practical standard of efficiency; indeed, it cannot afford not to do so. The writer does not wish to commit himself to the proposition that every clergyman, lawyer and physician ought to have a college education—not to mention the other professions with regard to which this issue has not been so thoroughly discussed. This proposition is, in other words, plainly a charge that 71.6 per cent. of our clergymen, 82.8 per cent. of our lawyers and 90.8 per cent. of our physicians are either improperly qualified for the work which they attempt or that they have obtained competency by self-training, out of school, which is now universally regarded as impracticable on any large scale and as not to be considered by legislation looking toward future efficiency. The writer must admit, however, that a properly selected college course does contain studies which may be applied very usefully in the practice of these professions, and that high utility and broad understanding in each, absolutely requires a college education. But, in such discussions, it must always be borne in mind that it is the education itself and not the place where and the method by which it is obtained, that is significant. There are many men who cannot

be truly educated in any college, in any length of time, and others who will educate themselves, however handicapped by lack of schooling. The training received in a professional school is either merely learning a trade of a rather higher grade than carpentry, house painting and plumbing, or it is a true education, according to the mental development and innate quality of the mind of the individual. The man who enters the professional school with a meagre preliminary education, simply learns a trade; the one who founds his professional studies on a broad education, receives a further education as well. There are exceptions both ways.

It does not seem probable that professional material can be drawn to any large degree from women, whether graduates of colleges or not. The first prejudice against liberal education for women or their admission to the higher grades of industrial activity has disappeared. The very fact that half as many young women as men receive college education and that of over 4,600 women college graduates, only 43 enter the group of professions so considered by the U. S. Commissioner of Education and only 33, the so-called triad of learned professions, shows that it is impossible to consider seriously the increase of a highly educated professional class by the admission of women. In a certain sense, it must be admitted that there still exists a strong sentiment against the admission of women into occupations of the higher grade. To a large degree, this prejudice is due to the general sentiment that women are men's social superiors, and that they should not be compelled to do labor of any kind except that absolutely necessary in the home or of a light nature under favorable surroundings. It is often argued by advocates of "women's rights" that there is insincerity in allowing women to wash clothes, scrub floors and perform similar menial work or even to engage in office work, teaching and nursing, while discountenancing their entrance into law, the ministry, medicine, etc. But it must be remembered that, in general, the entrance of women into menial occupations is compulsory on account of poverty, and that such women simply cannot command the education nor incur the tedious and expensive delay necessary for admission into the professions. Conversely, the woman in good circumstances, while just as free to become a lawyer or physician as her less fortunate sister is to become a washerwoman, very seldom encounters just the necessary combination of causes which would actually direct her into such employment. In addition, there is a very prevalent opinion, which may also be called prejudice, but which is largely shared by women themselves, that a woman preacher, lawyer, physician, dentist, veterinary, etc., is an anomaly. In other words, it is only the exceptional clientele that wants such a ministrant, and only an exceptional woman that can fulfill the professional demands. Such barriers to the entrance of women into the professions may be called prejudices, if any one chooses, but it must be clearly appreciated that they are very different from the kind of prejudices which arbitrarily interferes with individual rights as to choice of vocation, and which has now entirely disappeared.

Even if we assume that at least the so-called learned profession should be recruited from college graduates and grant that the country can neither increase its burden of college students nor rely upon women's work to any great extent, no emergency confronts us. On

the contrary, the country is suffering from a plethora of professional men. For example, 4,000 graduates in medicine are required annually to make good the losses by death in the profession and to provide a proportionate supply of physicians for the increase in population. About 5,300 new physicians are annually graduated—an excess of 1,300. About 500 of these do not enter active practice, but the economic undesirability of training men for work in which they do not engage, is obvious and many of the 500 fail to enter practice or leave it after a few months' trial, simply because of excess of competition and not because they have taken the medical course for some special reason without the intention of practicing some phase of medicine. There is in the United States, one physician for every 720 of population. Most European countries do very well with one for every two thousand, although their incidence of disease is much higher than ours. If our medical schools closed their doors for ten years, the increase in the population and the decrease by death and disability in the existing medical profession may be calculated to make the ratio of physicians to population about 1:1,300, which would be ample.

Of the six professions recognized by the United States Commissioner of Education, only two, namely, dentistry and veterinary medicine, manifest any such demand for new members that the average graduate can expect to earn a living within the first year. An apparent exception exists in the case of the clergy on account of the tendency to make places for graduates and to retire older but still active men. Pharmacal and law graduates can usually secure clerkships at small salaries. It is very obvious, however, without any appeal to statistics, that a material reduction in the clergy would result in better organized, larger and stronger congregations and in a union of some denominations which differ only in minor points of theology.

The law is notoriously overcrowded, and the financial suffering in the profession would be incalculable but for the fact that real estate, politics, night teaching and various outside occupations make it possible to tide over a considerable period while no intention of joining the legal profession.

The surplus of pharmacists is plainly shown by the existence of one drug store for every five or six physicians and by the fact that it is exceedingly uncommon to find a pharmacy which limits its function to pharmacy. It is quite unobjectionable and, indeed, a matter of great public convenience, that the average drug store is a telephone largely upon the sale of patent medicines.

This matter suggests a further consideration of the economic side of the overcrowding of the medical profession. The statistics previously given refer only to regularly chartered medical schools and licensed practitioners, and not to various cults which profess, in one way or another, to treat disease, nor to self-drugging with patent medicines. It might be supposed that these extra-professional sources of medication or substitutes for recognized medical treatment, would greatly increase the economic problem of the medical profession. There are, it is true, some medical schools and many practitioners of medicine that are under the ban of the profession, but that still supply fairly efficient medical training and medical services, respectively, under methods which incur the disfavor of the profession. In so far as the quack—and,

by the way, this term has come to refer almost exclusively to advertising physicians and not to imply any necessary lack of skill—is well trained and treats his patients individually; he competes with the medical profession precisely as any one of their number who has a corresponding number of patients, and he has precisely the same legal standing. This kind of quack has little importance in any broad consideration of professional matters. From the selfish viewpoint of the medical profession he may enjoy greater financial success than he would obtain if he practiced on his own merits, without the assistance of specious advertisements, yet no one man can possibly see and prescribe for enough patients to make any appreciable inroad on the work for the profession at large, and the mere financial success that any one of them can have, since their clientele is necessarily limited. From the selfish viewpoint of the community such a quack is no better and no worse as a physician than he would be if he practiced legitimately, excepting that he cuts himself off from the benefits of association with the better class of physicians, and thus tends to retrograde or, at least, fails to develop as he otherwise might. But, at the worst, he is no greater competitor against the profession than any financially successful member, and he is no more incompetent to care for the sick than many regular physicians of nominal good standing.

But when competition with the medical profession occurs on a wholesale basis it is very appreciable, though in exactly the opposite direction to what would appear at first sight. For example, instead of a few physicians gaining a specious success by advertising, let us substitute an organization of several thousand who claim that without any special medical training they possess some routine method which is adapted to all cases or nearly all, or let us substitute for the comparatively few patients who can be at least superficially examined, thousands who can be induced to buy ready-made medicine. It is immaterial whether the method used is good or bad in itself. Massage and manipulation of the flesh is a most excellent remedy for some purposes. So, too, many nervous cranks need to be told, in one way or another, that there is nothing the matter with them, and to think of something else than their symptoms. A ready-made medicine cannot be a very useful one, for the obvious reason that a valuable medicine, like a valuable engine, is highly dangerous unless controlled by one thoroughly conversant with it. Such a medicine may be insidiously dangerous or even ultimately fatal, but, obviously, if it were immediately dangerous, enough accidents would happen and would be discovered to discourage its use. Thus, the field of patent medicine is with comparatively trivial symptoms. It is equally obvious, on a little reflection, that it is a matter of indifference whether the physician who compounds a patent medicine is qualified or not, and whether the medicine itself is excellent or bad. As has been stated, no patent medicine can be very excellent because it must not be powerful, and for the same reason it cannot be so bad as to do immediate damage of serious degree. The essential trouble with the exclusive system of practice and with the patent medicine is that, however good in itself, it is not properly directed. Even if the proprietor of a patent medicine were the best physician in the world, and the medicine itself the very best

prescription that could be compounded for some one condition, it would not be suited to other conditions, nor could the patient, simply by his sensations, decide whether he needed it or not.

Thus, whole in individual cases the exclusive system of treatment or the patent medicine may benefit the patient and compete with the regular practitioner, in the long run more work is made for the latter than is taken from him. As a rule, the damage done by irregular practitioners and patent medicines is negative—that is to say, the treatment does no harm, but the existing trouble grows by neglect. Occasionally actual direct damage is done; for example, by kneading an inflamed or ulcerated area; by establishing the morphine habit by the use of cough mixtures, or the alcohol habit and its attendant lesions by tonics; or cathartics injudiciously selected and too long used, may lead indirectly to very serious conditions. Still, on the whole, the patient is simply putting his ailment aside at compound interest till the total is so great that he realizes the necessity of consulting a regular physician, and the latter has the financial benefit of a serious and obstinate case instead of a simple one that would have originally netted him only a few dollars. It is impossible to estimate exactly how much damage is done by "competitors" of legitimate medicine, but it seems altogether probable that the United States is able to find some sort of employment for more than twice the proportion of physicians supported by Europe, largely on account of the addiction of our people to charlatans and patent medicines.

The writer would guard against the impression that education is unnecessary, or that any restrictions should be placed upon the choice of vocation by the individual or upon the opportunities for the gratification of proper ambition. The United States have, with some exceptions, plainly declared that every individual of sound mind and body should have a grammar school education. Not only are grammar schools provided at the expense of the government, but in many localities aid is furnished to indigent pupils, while the unmistakable significance of compulsory education laws and limitation of child labor by statute, is that the country not only is willing but insists that every child of average intelligence and health shall take advantage of the opportunities provided.

In the large cities, with possibly some exceptions in the South, and in nearly all parts of the more advanced States, there is a somewhat unsystematic but very efficient provision of high schools by the State, county, city or town. There is no compulsion as to attendance at such schools, nor is there any public attempt to assist children whose parents are unwilling or unable to provide for their maintenance during the corresponding period of life—on the average from 14 to 18. In some localities, half of the pupils who graduate from the grammar schools, attend at least a part of the high school course, and in some States about one person in every seven of high school age actually graduates from a high school.

College education is almost universally regarded as beyond the needs of the average citizen, and, until recently, it has been left mainly to private philanthropy, including that under control of religious denominations. Many of the States—mainly in the West—and a very

few cities, as New York and Philadelphia, have furnished truly public colleges or universities. For practical purposes there is comparatively little difference between public and private colleges. The former usually require the payment of a small fee for incidentals, while the latter, by scholarships and informal generosity, remit the tuition fee in many instances, and in almost no case does it represent anything like the actual expense of instruction. Moreover, the tuition fee is a very minor part of the college expense, which usually involves board at a distance from home, travel, more liberal personal expenses than in the case of boys and girls of high school age, and loss of earning capacity, which now exceeds the direct cost of maintenance and tuition. It must not be forgotten that the present standard high school covers about half of the college course of a couple of generations ago, and that, with the increase of population in cities, there is a tendency—at present little more than a tendency—toward the erection of free colleges open to the public on the same conditions, except the relative increase of previous educational attainment as for the present high schools.

Wherever States have founded public colleges these have usually been departments of universities, which provide for professional instruction in medicine, law, pharmacy and dentistry, on the same basis. Yet, speaking generally, the educational and pecuniary advantages of such public professional schools have not competed seriously with similar schools conducted on purely business principles. With the exception of schools of theology, which, obviously, present embarrassing features for State legislation, private philanthropy has done very little for professional schools of any kind. Indeed, there is little apparent reason why the government should render assistance to the candidate for professional calling and not for the candidate for any other life work, excepting as the provision of public instruction expedites the legislative control of professions which cannot safely be left to individual preparation. Indeed, the propriety of purely private corporate management of schools which must, in a very practical way, be under legislative control, is coming to be more and more seriously questioned.

It must not be forgotten that while the college is sought for the excellence of its instruction or for social features or convenience, economy, etc., there is a distinct tendency to seek the professional school on account of its lack of thoroughness. This is an inevitable result of the fact that the professional school is a means to an end, in a very direct sense. It must also be remembered that, while a man taking both the college and a professional course, usually takes the former first, the educational status of the latter is distinctly inferior and, excepting as its students are regulated by law or university requirements, they are themselves, educationally, below the level of the college student. This statement is becoming less and less true as professional knowledge becomes more exact, and as legislation regarding professions becomes more explicit, and the time is not far distant when the degree of a professional graduate will be commensurate, in educational value, with that of doctor of philosophy.

It is impracticable, even if desirable, at the present time, to require a college education as a basis for professional study. Yet it must be admitted that there is

a strong tendency in this direction which may be realized within half a century. Meantime, the marked overcrowding of many of the professions, which is both an economic evil and an obstacle in the way of individual improvement and equipment, and which requires attention on its own account, is an important factor in hastening the day when at least the so-called learned professions will be based upon a college education.

OBSTETRICAL EMERGENCIES.

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WHEN reminiscence "lifts her lid" for backward glance, a troupe of vivid obstetrical experiences sally forth into lines of mental review. After forty-seven years of practice, the writer may be pardoned for reverting to a few cases out of his usual, nevertheless in nowise limited to his personal tide of professional affairs. As a novice, after graduation, I started out in a partnership arrangement with an older and married physician, who for years had been located in a mining town adjacent to scopes of beautiful farming country in Pennsylvania. Of course, all obstetric calls came to him personally. "Doctor, I'll get you a confinement some dark night when the right sort of case turns up" was my all-around partner's occasional encouragement for my introduction to practical obstetrics. But I found that case was not eager to turn up to a new young doctor while the older one was available.

After about eight months an opening for a "new doctor" in another location transferred me to a small rural village nestled amid picturesque reaches of well-tilled farms, and abundantly inhabited, for a neat country practice without immediate competition. It was in a section traversed across its middle by a thoroughfare drive-road and by a well-equipped railway between two large towns situated fifteen miles apart. Many excellent "best families" were scattered over this area, and wed to their paternal homesteads. Everybody seemed friendly and sociable with everybody else. The higher circle hospitably visited the humbler in hours of trouble. Besides the numerous farm mansions, here and there a small cottage dotted a niche along a dell or perched its chimney by a rim of woods against a distant hillside. The village church, the village store, the village hotel were popular exchanges for community information, where was promptly and deftly turned the kind of windmill which blows the chaff from the wheat of neighborhood affairs, including the new doctor—every new doctor's repute similarly located—because in a few hours all local news becomes mutual property.

"Never reveal to your parturient patient your anxieties concerning her case, or you will weaken and probably lose the invaluable prestige of her confidence. In all emergencies restore and stay the woman's helpful assurance till the danger line is safely passed, if you would prove yourself successful accoucheurs," was the axiomatic text variously expounded to his class by the great nestor of obstetric teaching, Professor Charles D. Meigs. Few physicians easily forget the first or initial

test of their obstetrical service and their cherished gratification if all went well. I had been in my new location a month as a single man. One afternoon in December a hurried message came to me saying that I was wanted at once at the cottage of Patrick Worker, less than a mile distant—that it was a "confinement case!" Besides my endeavor to rally into front line the emergency precepts of my late professor, I think my heart went up in urgent prayer for help every step of the way there.

It was a plain, honest Irish cottage. Besides two or three other interested women, there met me two of leading importance—one the rather experienced widow of a lately deceased physician; the other, who had herself given birth to nine children, but who, before the end of another year, became my mother-in-law. The patient had been unavailably toiling in labor since the preceding evening in official charge of an oft-times helpless country midwife. But in this case she was unsuccessful, declared that the child was fast, and had withdrawn to make way for the new doctor to be brought. I found the patient moaning, disconcerted, over-wearied. She had been kept many hours upon her knees to "bear down." I had her to lie down easily on her left side, while I gained thought by feeling her pulse. "You have enough strength left to come through all right—now don't worry any more," I said, as composedly as though I had been a veteran in presence of the distinguished experience of the friendly personnel about me. With water, soap and towel I washed and dried my hands with as much care as if the patient had belonged to titled nobility. Lard was handed me, and under wistful glances of the wise ones about me, I made the initial vaginal examination of my obstetrical history. My slender forefinger reached the vertex of an unborn head—the head that had not come forward for the midwife with the wearied patient, held to a knee-chest position and the dip of the heavy abdomen holding backward the unborn child.

"Will I die, doctor?" moaned the discouraged woman. "No, you will get well again," I replied, with confident tone, to rouse her courage. "Give up all your fears now; you are only real tired. I am straightening out this heavy weight in your body so that you will not waste any more strength; you will help us by trying to bear down as hard as you can, just while the pressing pains are on and these good friends and myself help you; then you will soon be all right." "See there! see there! We told you that this doctor could help you through!" exclaimed the gladdened women. I think their assuring voices cheered me as much as they cheered the hitherto disconsolate patient. The work of the labor was earnestly resumed. It was my opportunity for study on the living subject. Nature was teaching me while I was officiating as the assistant of nature. Inside of thirty minutes a living boy was born. While the infant was being washed and I was awaiting the next development, another energetic pain indicated a continuance of labor, and another child entered the vagina, and in a few minutes more every one was surprised at my success in delivering twins! Both the father and mother expressed gratitude because both children were born alive. They were of Catholic faith, and no priest nearer than six miles away. The mother recovered nicely. Since my name measures four initials, my good luck was honored by naming the boy

first born "G. B.," and the one delivered second was named "H. S.," and it was declared that if they lived, one should stay with me and "learn to be doctor." The publicity and happy termination of this case of twin labor seemed to put the midwife out of business, and like a bound set the new doctor up in obstetrics in his new field. In its turn, he presided at the birth of the new baby in nearly every house for miles around.

Although I have since studied Negro characteristics and progress with unusual assiduity, and have written representatively of the emancipated Negro class in my recent work of fiction on the Afro-American problem in the United States, I have never attended but one Negress in confinement. There resided a Negro family in an old house up a hollow in the woods near by to my first case of obstetrics. One summer day I was called there to see a young Negro woman who was in spasms. I found her pregnant and nearing labor. The paroxysms were severe, attended with contortions, with rolling of the eyes, with frothing, and in significantly close succession. At my visit next day I discerned that labor was in active progress, and each paroxysm corresponded with each successive uterine contraction. I remained and delivered her. The fits then abated, and she regained consciousness. Her married sister, at whose house she was then staying, told me the patient was not married, and had worried immoderately about having to give birth to a baby. Twenty-four hours after delivery I made my next visit to the case and found affairs satisfactory. On the day following this, when I made my second visit after the labor, I was surprised to learn that early on that morning the patient had risen, dressed herself, taken her babe and doubtless had walked nine miles to a certain town at that distance to find the father of her Negro child. The case gave me pith for reflection.

Instances of secretiveness and cupidity are not limited to the degenerate haunts of city practice. One mid-winter night when snow was deep and sleighing the mode of rural travel, I was called up to go to a house about two miles distant across a bleak ridge to visit a case of severe colic that ordinary home remedies had not relieved. The patient was a young woman in her mid-teens. She occupied an unheated bedroom, the chill of which compelled me to keep on my winter overcoat. The case was duly stated to me by the mother. I accordingly gave some remedies in divided doses for gradual relief, and, as was my habit in all colic cases, I tarried to note the progress of effects. Luckily this was before the advent and prowess of the hypodermic syringe and morphine tablet. The girl did not moan aloud, but would writhe under thick covers with each successive cramp—while we waited in the frosty room. An hour passed. Leaving the mother awhile upstairs, I went down to warm by the kitchen fire. On my return upstairs to relieve the mother's watch, she sought the warmth below as I had done. "I do wish she could get better faster—you will have to give her stronger medicine, doctor!" the mother murmured in my ear, as she passed by me. Noting that her colic rhythms resembled rather regular recurrence of cramps, I ventured to remark to the girl, who had kept herself so close beneath the bed covers: "Your pains continue so stubborn that I must seek for more sufficient cause. There may be a twist or knot in the bowels." Placing

my hand beneath the covers, I found her abdomen suspiciously enlarged. While continuing my gentle external exploration I discerned the positive kick which started another cramp. "You seem to be in a family way and may presently have a baby," I said, confidentially, when the pain had subsided.

"Why, doctor, that's impossible! You know that I'd never do such a thing!" she protested. "Now, it may seem that way to you," I quietly replied. "I suppose it has been an accident. But I believe you are on the way to give birth. Does your mother know about it?" I gently persisted. "Don't tell such a thing to my mother—for it isn't true!" she resented. "Wait, I must make sure that I am right," I fenced, as I glided my now warmed finger up the already slippery vagina and found the dilated cervix opened and the substance of the child presenting. "I had enough prudence to realize that if I committed a professional blunder against this girl's reputation it would prove a recoiling blow at my future in that sensitive community; but now I knew that I could not be in diagnostic error. I went downstairs. The mother turned to me expectantly: "Is she getting better, doctor?" she asked. "Not yet," I quietly replied: "but I think she will be better perhaps in an hour of more. She is going to have a baby—that's the reason her cramps have been so persevering."

"Doctor, if you are in your right senses, you do not mean that!" she surprisedly braced. "That's impossible with this girl! I've seen enough in my time to know some things! She and I have slept together every night of our lives for two years! If she is pregnant as you say, how could she hide it all this time from me? You surely are this time mistaken!"

"I am as sorry about it as you can be, my friend," I explained, "but I have just examined her, labor is well on, and in due time you will doubtless have the positive evidence of my judgment in your arms. But don't worry this poor girl about it now. Be as patient as you can—for you see how she has suppressed her suffering to-night."

"But, doctor, how can anything come so unexpected! Why, there's not a stitch in the house to put on if it does come! There hasn't been a hint, nor a thread of preparation made ready!"

"Oh, well," I subduedly rejoined, "we will manage to get along. We can keep it warm in a blanket. At daybreak you can send your son to the nearest house where there are children and borrow a little something to shift with till you get some baby clothes made. I must now hasten back upstairs—she needs me." And before the dawn of morning the living babe's pathetic cry appealed to the tenderness of all hearts. I never heard that this girl took her babe in her arms and started out to seek its father. Perhaps he had gone South to join the army and had been killed in the blazing clash of remorseless battle. The Civil War was then on, and I accepted a commission.

After the expiration of my enlistment, I located in a rapidly growing mining town in a Pennsylvania anthracite coal field. Here I had to re-learn many things. I found that childbirth among the hardy mining population of direct immigration, and of recent foreign extraction, was more frequently a difficult, even dangerous procedure. Pelves were often narrow, and soft

parts, including the cervical canal, undesirably firm in texture, so that dilatation was slow and propulsion a tedious, often an inadequate task. Among that people I was compelled to resort to the aid of the forceps more frequently than among the rural population, or in my later Philadelphia experience. And for some unaccountable reason I met more breech presentations and face presentations in the coal regions than subsequently in my Philadelphia practice of thirty-six years. As I to-day review pages of my notes of scenes in the coal region during my stay there, from 'sixty-three to 'seventy-one, which covered most of the murderous Molly Maguire regime, I am startled with painful surprise, and wonder how I was enabled to come through many emergencies as well as I did. In 1864 I was summoned to a case of labor in the person of a young Welsh girl, of short stature, and an antero-postero contracted pelvis. She lived with her parents, was single, her lover having fled to the army by enlistment. With some intermissions, but with unappreciable progress, her pains continued for a week. The child's head seemed too large to descend through the pelvic accommodation, and the os tincæ was dilatable only by manual manipulation.

On the night of the eighth day of my attendance, when the condition seemed desperate, I asked for consultation with a certain modish German doctor past middle life, whose propensity for his pipe and the management of labors among women of the common working class had an acknowledged recognition. As I had been located in the town but a year, I felt the prudence of division of responsibility in this complex case. I had tried to use forceps, but did not get the head in proper grasp. The consultant soon decided that nothing more could be done except to try the process of craniotomy. He had no instruments—but I had on the spot all that were needed. I gently announced our decision to the parents and to the patient. It was twelve o'clock at night. The sufferer had realized the crisis of her situation. She forthwith had all her relatives in the house brought to her bedside, and extending her hand to each one, she bade them good-bye. The moments were solemn. Her father and her mother were the ones most affected, but the patient manifested only a steadied resignation. Then came our turn. I had never then yet performed craniotomy on the unborn child, and insisted that the older doctor should proceed. I would attend to the anesthetic with one hand while steadying the girl's left knee with my other. Without a quiver of emotion the doctor punctured the head, enlarged the opening by spreading apart the cutting-blades of the obstetric perforator, applied the bite of the pliers until piece after piece of the skull was broken and brought away. Then with room for the forceps to enter the narrows and clasp the collapsed head, with difficulty it was delivered. That majestic little woman recovered as speedily and happily as though her labor had been normal. She was of hardy stock. Her young man lived to return from war, and to marry her as she deserved. This experience served me well at a later day.

On a subsequent occasion I was sent for about eleven a. m. to meet another doctor in consultation at a scene of unsuccessful delivery. Was told to bring along my instruments. The patient was a rather buxom young

married Welsh woman. She had been in labor most of the previous night. The doctor had been with her four hours. Said he had applied his forceps several times, but they would slip off when he attempted traction. I believe he had what was called the Hodge forceps. My examination discerned that it was head presentation; that the head was yet high and within grasp of the womb; that the pains barely caused the head to rotate upon the pelvic rim. The woman was short and stout, the vagina very fleshy and close. It was a case where the venture of courageous work was imperative. With perplexing difficulty I succeeded in getting my neat Davis forceps applied upon the head with exactness and squarely adjusted at their joint. I was quite an hour in accomplishing this essential result with that constantly distant rolling head—for I could only make my endeavors in the brief intervals between the severe uterine contractions. Co-operating then with each recurring pain I worked faithfully with hard traction on my forceps for about two hours, but gained indifferent progress toward delivery. Becoming rather wearied, I asked the doctor who was in charge to take hold of the forceps handles to prevent the blades from leaving their fine grasp upon the head. He was a more muscular man than myself, and made unusual traction with the recurrence of pains, but without result. I then proposed to open the cranium while the doctor would yet hold the head in the grasp of the forceps. I never saw a man so quickly assent to an emergency resort in childbirth. With no delay I perforated the cranium with my obstetrical perforator and enlarged the incision by spreading apart the blades. I then introduced the grappling end of the obstetric blunt hook to a spot where it got firm hold inside the skull. Sustaining its position there with my forefinger as my right hand also grasped the handle of the hook, and drawing with full force with both hands—also directing the doctor to join my efforts by drawing with the forceps which had not been removed, our conjoined traction succeeded in extracting the infant. The child was large, with the skull sutures too completely closed to allow of contraction by natural labor. Thanks to the snug fit and careful management when introducing the blades of the forceps, in the brief intervals between the termina of rigid uterine contractions the womb escaped injury, the soft parts were unharmed, the woman made good recovery. "Why did you not fracture off portions of the skull to reduce bulk?" may be asked. Well, we may perchance not always know definitely why we do or don't do in certain emergencies. But it had occurred to me in the crisis that possibly, if I broke into fragments a material portion of that skull, it might lose for us the steadfast clasp of my forceps, the body might also be voluminous and hard to deliver, we better hold what we had to hold with. I did not want my forceps to come from that pelvis without bringing along the child.

As examples of the defaults of obstetric prestige that deficient courage, also the depression of fatigue, will betray one's loss in results, I will refer to two cases. One night I was sent for hurriedly to assist a doctor who was several years younger in the profession. I did not have many squares to go. When I arrived, every one in the house seemed to be in the pause of apathetic suspense. The doctor was passive-

ly waiting. The husband appeared withheld from active apprehension by an expectation that other help was all that would be needed. The patient lay like one outdone before she had finished, and there stopped—unless reinforcement could rally to her aid. A child had been born an hour before. Another remained to be born, but was not. I found a loop of the placental cord protruding beyond the labia and an arm thrust out, besides. The doctor said he had become tired and afraid to venture anything further without assistance. He desired me to take temporary charge. I then told the patient that I had agreed to help her complete the remaining part of the task on hand; that I would proceed to deliver the other child if she would try to bear with the temporary discomfort I might occasion her; that everything should be as gentle as possible and harmless; that she had been resting while I was coming, which restored to her enough strength to now help me out for her relief. She looked at my face for a moment in a peculiar, questful way, and nodded her head in assent. Her pains had slackened as if for lack of stimulus. But I knew from experience that that situation was soon to end. Indeed, for a few minutes, at least, I would be pleased for her to have no positive uterine contractions to impede the procedure. I never was one to resort to anesthesia on every pretence. I preferred the woman's sober senses if possible. I always desired her cooperation. If any accident transpired, if the placenta was difficult to manage, if any considerable flooding ensued, I always wanted the undoped prowess of the woman's system to be operable for her rescue. This made the patient much safer.

To prevent the danger from hard compression upon its circulation, I replaced the prolapsed cord as far back into the vagina as I could get it. Then I returned the protruding arm and lifted the shoulder from which it extended to the depth of the pelvic cavity and kept these there in order that the shoulder presentation might be retired from the outlet. It was not long before I found a foot to grasp instead, and brought it downward, thus turning the child in utero by the propulsion of the ensuing contraction. With the delivery of this leg, the abnormal shoulder presentation was converted into a normal breech presentation. The thigh joint of the other leg was next reached by the hook of my finger, and with the next pain the hips gently delivered. When it came to releasing the head I somehow managed its exit safely without strangulation, and the suspense was over. When I asked the doctor why he had not adopted that procedure himself, he replied that he had never yet done it, was tired enough as it was, and preferred to have me take the further chances. It being a twin child of but moderate size, I had not found the method difficult. I returned home that night more happy than when I had left it because my call to render assistance had not proved any disappointment.

While it was my professional base, there came to this mining town, as temporary, perchance, a young Irish doctor, from where I never inquired, who was of rather dashing personality and fine physique. He soon won a share of patients, especially among his nationality. One summer day a messenger, with this doctor's horse and buggy, drove to my door, request-

ing me to come with him immediately to a certain "Patch" or colliery about two miles distant to a case of confinement where the doctor awaited me. I was also instructed to bring along my instruments. Inside of five minutes I was on the way. When I reached the house I found the patient's room literally filled with neighborhood women, in a state of nervous anxiety. The young doctor greeted me profusely, with added descriptions of the difficulties that confronted him. He told me bookishly of the unfavorable position of the child's head, of the number of hours the patient had spent in labor, and his impossibility of delivering her with the forceps that he had—that he had applied them five times with futile result. It looked as if I was face to face with a serious situation, yet I felt that a gleam of sunshine hovered athwart my chances.

The patient was a hearty-looking, well-fleshed young married woman. This was her first accouchement. Her underwear and hair were damp with perspiration. Her pulse was encouraging, but she had been infected by the emotional fussiness of the doctor. I requested the sympathizing women present to stand back further from the bed and allow a fuller volume of relishable unsweated outdoor air to refresh the patient. When I bespoke this advantage for the wearied lady I also counted in myself. The successful accoucheur never fails to consider the quality of breathing-air he is feeding to the lungs and blood cells of the laboring woman and to himself meanwhile. Very calmly I made deliberate vaginal and abdominal examination by which to gauge my conclusions. Confidence braced my heart and voice, relatively young as I then was, and slender as compared with the athlete who had so impotently used his forceps. I asked the lady to now give me all her thought and attention; to turn upon her back a minute until I might get her womb and its contents plumb with the birth-way channel; to hold firmly to her pressing down pains only when they came; and let me help her through her trouble as soon as I could. Inasmuch as she inclined to turn to her left side when contractions were on, I let her do so in her propulsive effort. The head began to descend. Five or six pains more enabled me to deliver her of a fine living babe—without the flummery of suggesting the application of instruments. It was my lot to be there crowned with the rejoicings of grateful hearts, while the athletic doctor gazed from the foot of the bed in complete amazement. The infant's forehead and scalp bore severe marks of abrasions made by the misapplied forceps that had been used—but these surface injuries were all healable—and the marriage bells of relieved hearts rang anew with rejoicing.

"How the devil did you do that, doctor?" queried the perplexed professional when we had stepped for a few minutes outside the house after it was over. "I suppose I did it with the help of practical tact and the help of the Lord," I replied evasively. "Well, I wish that I had some of your knack for it!" he replied.

"I want the doctor who brought the baby to attend us till we get well," pleaded the weary but relieved woman. The other doctor earnestly joined her wish, evidently preferring to retreat from the situation—and

I continued in charge. The woman's will and not fastidious ethics shaped the diplomacy. Before I leave the coal region I will refer to one more case, after I tell of an unexpected reverse that I sustained at another house in the same colliery group. That also was the case of a first labor. It was not the custom there then for the doctor to be particularly engaged to look after the case in advance. He might never have met the patient prior to his call to her labor for childbirth, when he necessarily must deal with physical conditions as he finds them. The patient was an English woman of considerable intelligence, several years married, but then in her first pregnancy. The labor was torpid, tedious, fatiguing. Finally with my forceps I delivered her of what proved a dead-born child. Believing it, however, possibly a case of suspended animation from slow birth, I made prompt and earnest effort to start the infant's respiration. The mother did apparently well till between the third and fourth day, when a chill announced the onset of the serious complications of a metritis and what was then called puerperal fever. I discovered that her lungs were diseased and her liver sick. Her fair skin assumed a saffron hue. Consciousness became confused. At intervals her mind wandered amid phantoms of delirium. When I visited her one morning, noticing that she seemed in stupor, I asked her if she knew who I was? Promptly, in loud voice, she replied: "The doctor and Jesus Christ!" At once it bore upon me that my patient was going to die. Like most persons do who discover that the fates are pitching a desperate game against recovery, the husband looked about for some provocation for censure. He reproached me for spending time in endeavor to rally the infant before I had first fully attended to the wife—proof that he prized his wife more than his child whether the latter lived or not. My efforts to guide this woman to the comforts of recovery proved a failure. She expired on the fourteenth day after accouchement. Her decease carried with it all the glamour of obstetric vanity, if I had entertained any.

Now I come to my concluding instance of emergency in this article. First labors are usually the most difficult; although I have had cases where the woman so materially forgot the severity of her first experience as to complain at each subsequent labor that its punishment was the worst she ever had. Now again my instance concerned a young Irish wife within a year of marriage, and another night for me at a colliery "patch" two miles from town. The patient was of firm, compact physique, unaccustomed to suffering, and without the forbearance of her emotions. When I reached her at evening it was stated to me that she had been in labor twenty-four hours under the care of a "midwife", in order to avoid submitting herself to the indelicacy of being handled by a man-doctor. Illness and suffering, however, fortunately and effectually brush aside the whimsical barriers of fastidious qualms. The curiosity and sympathetic interest of the neighborhood women had grown intense as the weary hours had dragged along their prolongation of anxiety and moans. I did not find the situation much advanced, dilatation had been slow, and the practical part of the parturient task remained to be accomplished. I toiled with the case till near midnight. The head meanwhile had descended to the lower strait. But the contractile energy of the

uterus had become so far spent, that progress was no longer promising. It was not then the fashion in the coal region to allow the husband to be much in evidence while the interested women and the doctor had charge of birth-giving procedures. I do not believe that I saw the husband of this patient that night. As was so often the case among that class of people, it seemed the man in the affair felt abashed by his agency in the disagreeable dilemma. Repeatedly I had husbands sought out and brought in during a severe labor, to be present, to even help to hold and steady the suffering wife, that he also might realize what woman endures because of man's sexual desires. It teaches a man who has any heart to be less selfish, more thoughtful and considerate of his wife, after he has witnessed the tortures that she comes through when she must give birth to the child that he begat by a moment of pleasure!

But to resume: I had concluded that the patient's strength had been sufficiently tested. When I announced to the friends present—women—in the front room, that I had better end the labor by using my instruments, I noted at once a buzz between approvals and objections. The patient and friends were of loyal Catholic faith. They stipulated that the priest be first sent for—one woman of vocal frankness seconded the motion by declaring: "After all, the priest is the best doctor!" I diplomatically assented. The priest arrived about an hour after midnight. Though a Protestant myself, I had been told that this priest had spoken favorably of me to his people one Sunday in the parish church, and I did not fear that he would recommend any other consultation in the crisis. The front room of the house was crowded with women waiting to learn what the priest would say. I had remained with the patient while the priest was getting there, hoping to yet succeed in delivering her and have it happily over, but the contractions would not comply with my earnest desire. When the priest entered he glanced a moment at the patient. He then asked me to step aside with him. "Doctor," he said, "do you think that she will come through?"

"Yes, sir; I think so. She is tired now. I need to use the forceps," I replied.

"Then you wait out here a minute till I can see her," he next said, and immediately returned to the sick-room. What particular blessing he administered I never inquired, but I knew the patient would gain in her assurance. Altogether, the situation seemed to relieve my own nerves to an extent, for the priest's mission must now share the responsibility. When he came out of the bedroom, he said: "Now, doctor, go on with your work." Then, turning toward the crowd of expectant women, he raised both hands in a dismissing or "skiddoo" manner, and with commanding tone: "Now, you all get out from here!—all that don't belong here!—go, now!" The congregated spectators vanished like a flock of frightened birds. I returned to the laboring woman, carefully introduced the blades of my Davis forceps, the Lord helping me to get them readily adjusted at their joint—though I was working in presence of the priest, who observed my procedure, and without rush or accident in a short time I had the happiness of delivering the fine, living child. No baptism of the infant in mid-birth was necessary, nor did it have to enter "dark-

ness" on its way into this world. The good priest hastened home. My notes do not indicate evidence of any untoward sequel.

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A PRACTICAL STUDY OF HYSTERIA.

BY W. T. MARRS, M.D., PEORIA HEIGHTS, ILL.

HYSTERIA being a neurosis, or, in other words, a disease for which no anatomical lesion to account for it has been found, it is not regarded with a great degree of significance. The subject viewed from this basis should not be summarily dismissed, for many of the most troublesome affections we daily meet may be classed as neuroses, but may nevertheless if unchecked eventuate in many complications and sequelæ.

The womb is no longer considered the storm centre in the causative factors of hysteria. Even men are not immune to this disease, although we are more prone to designate the trouble in the male sex by the names of neurasthenia or hypochondriasis. It is true that in most females suffering from hysteria there is found some uterine or sexual abnormality. The left ovary is invariably tender, quite often painful, but this fact has no great significance, for careful observers have recently pointed out that men are often sensitive in the left hypochondrium in the spot analogous to the location of the ovary in the female. In the majority of cases of hysteria there is likely to be found some uterine trouble, as a displacement, subinvolution, erosion of the cervix, etc. However, it is a rather paradoxical fact that the graver the uterine lesion the less likely is it to be accompanied by signs of hysteria. It is quite common and severe among those who suffer from sexual excess. Women living in a state of celibacy are very liable to become sufferers from this malady. In fact, no station or occupation is exempt. Lack of occupation may be put down as one of the strong predisposing factors. Idle, pampered women, who have nothing to do only to concern themselves in the frivolities of life, indulge in sensational literature and in some measure alienate themselves from their husbands' affections, have developed a good soil for hysteria.

Perhaps the strongest predisposing factor is the transmission by heredity of an unstable nervous system. We find the most typical cases of hysteria in persons whose antecedents are decidedly neurotic. These neuroses may have been of variable character, e.g., bad temper, dipsomania, insanity. Hysteria is not bounded by latitude or longitude. It has occurred the world around in all ages. It is described by the oldest Brahminical literature as well as by the ancient Greek and Arabian physicians. It was then thought to depend upon uterine affections. A few thought it to be due to retention of menstrual blood or of semen. Along about the eighteenth century Sydenham put forth a few new ideas on the subject. He regarded hysteria as originating from an abnormal function of the brain and nervous system. There it still stands to-day, although each decade gives us some new ideas on the management of the malady.

As intimated above, hysteria is not confined to geo-

graphical limits. It is found in the Arctic latitudes of the Eastern Hemisphere and occurs on the Continent of Europe more frequently than in America. It is very common in Africa and the Orient. In our own country it prevails to a marked degree in the Southern States. Perhaps the climate, together with an hereditary inclination toward a life of ease and luxury, are conducive to the disease. However, hysteria may be considered as being ubiquitous and may occur wherever a woman is found who has poor health or pent-up emotions. In general, it may be assumed to be a disease possessing some semblance to refinement. It goes with education of an improper character. The greater number of cases come from mediocre life. The densely ignorant and the thoroughly educated are usually exempt. The emotional periods of life are the times when hysteria is most likely to occur. These are puberty, pregnancy, and the climacteric. Among other predisposing causes are sedentary habits, idleness, too much sleep, vicious practices and the premature development of the emotional side of a girl's nature. Anæmia, general debility and anything that lowers the vitality, favors the development of hysteria. The various cachexia are frequent causative factors. Sometimes children with latent tuberculosis manifest hysterical symptoms.

The immediate causes of the paroxysms may be many and varied. It may be anything that makes a profound impression upon the nervous system, as grief or joy, anger or emotion, surprise or terror. After the paroxysm has occurred a time or two it may be again produced by very slight provocation. The brain and nerve centers are impressed with the *cell idea* of the paroxysm and each attack makes it easier for the recurrence of another one. Thus the tendency of one attack to predispose to another. The imitative impulse in hysteria is interesting. Many women produce well-developed paroxysms after seeing a woman similarly afflicted. Epidemics of hysteria have prevailed in many countries, and always arouse the morbid interest of both physicians and laymen. There is not a disease or a symptom in the disease category that has not been more or less successfully simulated by hysterical patients. The writer observed for several months one of the most extreme cases with a most diversified range of symptoms of any that he has seen recorded. The girl, who was about seventeen years of age, began with very ordinary symptoms, but she developed a series in a few weeks that caused her to occupy the spot-light with a large and attentive audience. The first thing of note was a spasmodic oscillation of the eyeballs. It really seemed as if the eyes would twist out of their sockets. This got old, and other symptoms of a spectacular character must be forthcoming. She had made a "grand-stand" play, and she had her reputation to sustain. How much volition played in the matter we will leave out of the question. Even though one in such condition is a *maligner*, who will say that the poor, weak thing can help it? So many physicians are prone to misjudge this class of patients, and too often hold them up to ridicule instead of bringing the proper influences to bear upon their minds with a modified environment. When the ocular trouble in the case named was spoken of by a physician as "pho-

tophobia," the patient seized upon this cue to develop a new disease—*hydrophobia*. The credulous could not be convinced that the girl did not possess that horrible disease, so successfully were all the alleged symptoms of it copied. Among these were howling and raving like a dog, lapping water and milk like that animal, and greater violence of the paroxysms whenever one was heard to bark. Frothing at the mouth was one of the marked symptoms as well as trying to bite her friends and attendants. During these many weeks the girl was seemingly in a state of unconsciousness. She did the clairvoyant stunt and told of deaths and other morbid events, both past and to come. I am satisfied that during her profound attacks even, there was a substrata of consciousness very near her by which she was enabled to pick up from those about her the material for her mysterious stories. A part of it was no doubt *bona fide* hallucinations and mental vagaries. These mental and physical symptoms of an unusual character did not seem to be self-limited. Treatment of a decisive character could not be carried out owing to parental objection. The family, however, became worn out after a continuous performance of this character for three or four months, and moved, with the girl on a stretcher, to Terre Haute, Indiana. Here she came under medical treatment that was magical in its results. A "board" of physicians examined her and the unanimous opinion was that she should at once be deported to a lunatic asylum. There was immediate cessation of all symptoms. She quit all her foolishness, and was soon in a normal condition. However, this patient was reported to have later had a nasal hemorrhage, during which there was passed an excessive quantity of clotted blood. Her permanent recovery dated from this event, which may, or may not, have had something to do with the hysteria.

The symptoms of hysteria are of such protean character that it is a difficult matter to give succinct and connected enumeration of them. The more common manifestations are too familiar for reiteration. The more complicated symptoms are often puzzling and should always be carefully studied for the purpose of differential diagnosis. We shall first briefly note the mental and emotional features. While it is the commonly accepted belief that the hysterical patient makes herself a storm-center of attraction by her ailments, her laughter and tears, yet there are nearly as many who suffer in silence. It is the hilarious patient who gets the most attention, but many women who are victims of hysteria make no outcry, trying to hide their miserable melancholy from others. It may seem on casual thought that the latter class of persons ought the sooner enjoy a restoration to health. As a matter of fact, however, the woman with low spirits and pent-up emotions does not fare so well as her sister who gives vent to her feelings in frequent nerve-storms. Those who suffer extremely from melancholia and low spirits are sooner or later prone to become mental wrecks or suffer a general break-down in health.

The morbid craving for sympathy, so often assigned as a pathognomonic sign, is a difficult matter on which to formulate an opinion to account for it. A woman may mutilate her body and exaggerate every

symptom she feels in order to attract attention, but this all seems to be as much for the *pleasure of deceiving* as for genuine sympathy. The moral nature is off duty when a woman has hysteria; all that is evil within her may unwittingly crop out while she may at the same time be convincing those about her that she is the pink of propriety. One of the most honest (otherwise) women I ever knew once brought me a mess of weeds, asserting that it had been ejected from her stomach. To summarize on this point, we may say that hysterical patients exaggerate their ailments to gain sympathy, to enjoy a little notoriety, sometimes by motives of pruriency, and last, but not least, the pleasure they get from the simple art of deceiving.

These symptoms of mental and moral perversion will, if unchecked, soon eventuate in a complete break-down of mind or morals. It is fortunate that hysteria does not prompt the sufferer to criminal acts oftener than it does. The only reason is that crime of the heinous sort does not naturally belong to woman's sphere. Blood-spilling is not esthetic. The sight of blood shocks her and it is her inherent nature to shrink from it. When she commits murder she does not want to be so "cruel" as to do it outright. Hence, slow death by poison is her choice method of getting rid of an enemy. It should not be forgotten that women do occasionally kill outright under the inspiration of hysterical frenzies. In such cases it would be a discriminating point in legal medicine to determine whether or not a woman is a fit subject for the extreme penalty.

Passing over the manifold symptoms which are purely functional, as well as often evanescent in character, we will briefly consider some of the graver physical signs that may ensue. The most important of these are affections of the limbs and joints in which there may exist more or less permanent impairment of function. Sometimes considerable diagnostic acumen is necessary to state whether there is a central nerve lesion, or whether the condition is simply a result of a pseudo-paralysis. The paralysis occurring in acute attacks is scarcely worthy of mention, as the electrical excitability of the muscles and nerves remains undiminished. The electro-muscular and cutaneous sensibility, however, is generally reduced. The patient is likely to associate cutaneous anæsthesia with paralysis. The law of suggestion here comes into force and muscular weakness is in the mind associated with the anæsthesia. Sometimes a woman who is able to walk with comparative ease may be suddenly seized with paralysis which lasts for days or weeks and then as suddenly passes off. These paralyzes may change their seat; it may be an arm and next a leg; or it may be alternately each side of the body. It is likely to be in the nature of a paraplegia or hemiplegia. The upper extremities are not so often affected. It may at times be special groups of muscles, *e. g.*, aphonia. When hysterical hemiplegia is rapidly developed it may closely simulate the result of cerebral hemorrhage. A diagnostic point always to be remembered is that in the former consciousness is preserved, and the face and tongue are never affected. The onset of hysterical paralysis is not always sudden and often seems to grow out of

muscular weakness. The duration may be indefinite. It may go on for months or years. It is in this class of affections that the charlatan gets in his astonishing work. But in many cases where these affections have grown into the category of the sub-acute or chronic the function is never wholly resumed. Disuse of muscles and joints results in time in atrophy, contraction of tendons and loss of nerve tone. If this condition be prolonged for a number of years it is probable that in the central nervous system there may be morbid changes, for nerve force is not so strongly generated as the demand for it grows constantly less. Hence we frequently find that permanent contractions and rigidity of muscles and limbs are the result of hysteria. These deformities are so numerous in character and variety that enumeration of them is precluded in this article. The knee is the joint most often affected. It sometimes occurs suddenly. The patient complains of all the symptoms attending inflammation. However, heat, redness and swelling do not exist and pressure does not increase the pain. The contraction melts away under chloroform. These troubles may disappear spontaneously, but may persist for months or years. Their disappearance may be final, but quite often there is a recurrence.

Disturbances of sensation constitute an important phenomena of hysteria. Anesthesia and hyperesthesia are nearly always manifest. Pain in the hypogastrium and epigastrium are almost invariably present, as well as various pains of a neuralgic character. The clavus hystericus has never been satisfactorily explained. Every special sense may be perverted by every conceivable symptom. Taste, hearing, seeing, and smelling, each may at times be in abeyance; or, again, they may be abnormally acute.

Respiration in most cases suffers much irregularity. A good many suffer from a dry, hacking cough during the day, but it should be noted that this cough ceases during the night. In tuberculosis the cough is always worse at night. The breathing is often of an explosive character, much of which is perhaps feigned. The voice is subject to many changes and is at times hard to recognize. The breathing is often rapid and labored.

Following the disorders of respiration, a few words concerning changes in the circulation may not come amiss. Palpitation is a factor in nearly all cases; sometimes it is very violent. The heart's action is often quite irregular and the pulse is subject to great variations. It has often been noted to reach 150 or 160 per minute. Spots on the surface of the body may show signs of congestion or the reverse. Sometimes these congestions produce a hemorrhage. Even internal hemorrhages have occurred during hysterical paroxysms and blood has been discharged from the bowels. All such reports coming from the patient, however, should be taken *cum grano salis*.

Disorders involving the organs of digestion are very common. The globus hystericus is thought to be due to a spasmodic contraction of the oesophagus. In some cases this symptom is so severe that patients assert their inability to eat until a state of inanition confronts them. The stomach shows many vagaries concerning appetite and function. The hysterical woman has many cravings for new, sometimes ab-

surd, articles of diet, much after the fashion of the woman pregnant. Frequent and sometimes excessive vomiting occurs, due, it is thought, to the spasmodic action of the stomach muscles. In many cases the amount of food retained seems insufficient to sustain life; but as a rule in these cases, the patient takes very little exercise and the process of metabolism goes on very slowly. The reports of prolonged fastings are usually fabrications. There are nearly always gaseous accumulations in the intestines, and these give rise to much pain and distress. It is in this class of patients that we find "phantom pregnancy," which is simply the bowels distended with gas.

The secretions are subject to great variations in hysteria. The most common of these are the functional derangements of the urinary organs. The patient usually passes a large quantity of pale, limpid urine after a paroxysm. At times the urine is suppressed and she can void it with the greatest difficulty. Quite often there is retention, due to spasm of the neck of the bladder. The breasts sometimes become swollen and tender; a few observers have reported a little milk as being secreted during an attack. The nutritive process in hysterical patients goes on remarkably well, considering the turbulent functional symptoms which the patient undergoes.

As to duration, prognosis, etc., hysteria may be acute or chronic. If the condition be once thoroughly developed there may be recurrences of it throughout life. Its course depends very much upon the woman's general health and the bias of psychic conditions that surround her. A congenial marital life with a tolerable environment give the best promise of complete restoration to health. The symptoms in favorable cases grow more benign from year to year until the climacteric is reached. At this stage a powerful eruption may again be anticipated. If she passes this period without becoming insane or the intervention of other diseases she is not likely to be further troubled. As a valuable point in estimating the prognosis in a given case, it should be remembered that if the patient has arrived at something near the age of thirty before symptoms are manifested, the more likely they are to disappear. If, however, they begin early and do not subside at puberty or after marriage, they are likely to last a lifetime.

There is very little trouble in diagnosing hysteria in uncomplicated cases, but very often it is found co-existing with other diseases. Epilepsy is the affection with which the paroxysms of hysteria are most likely to be confounded. The sudden onset of the paroxysm in the latter affection with its extreme profoundness, together with the rather rapid subsidence of symptoms, is usually diagnostic. There are cases of hystero-epilepsy that have puzzled skilled physicians to discern which of the two elements be the dominant one. In nearly all such cases hysteria may be put down as the main factor, coupled with mental degeneracy. Neurasthenia often resembles hysteria and may coexist with the latter disease. Neurasthenia is a disease in which there is loss of nerve tone and the patient is always below par physically. There are no paroxysms or outbursts. Hysteria is almost synonymous with "spells."

Treatment.—By this we include measures calcu-

lated to relieve the attacks as well as those that will bring the patient back to her normal state of health. Every sedative and anodyne in the materia medica has been used with a view to cutting short the acute symptoms. Among the remedies most often used we may name valerian, musk, the bromides, morphine, chloral, ammonia and hyoscyamus. The bromides and valerian are still the choice antispasmodics of many physicians. They are less objectionable than opiates. A hypodermic of morphine is usually efficacious in ameliorating the attack but extreme caution must be used lest a pernicious habit be engrafted upon an already aggravated condition. The writer usually depends upon a hypodermic of 1-12 grain of apomorphine. It produces emesis very promptly and is followed by a complete relaxation by which the patient's energies are directed in new channels. It is a peculiar fact that nausea is a powerful factor in relieving nerve tension. Inhalation of various things are often of signal benefit. Chloroform, ether and ammonia have been used for this purpose; also the fumes of disagreeable substances, as burnt feathers. Strenuous but rather disagreeable measures are sometimes practiced in order to produce a certain degree of shock or fear. Among these we may mention the cold bath or spray, which is often of the greatest significance. Fear being a great sedative, threats, judiciously given, may exert a benign effect. A call for scissors to cut the hair from the back of the head in order to apply a blister is sure to bring from the patient a protest of unwonted vigor. A number of physicians place setons in the backs of hysterical patients and irritate the sore by pulling the string a little daily. This is cruel treatment, indeed, and should not be resorted to unless all other measures have been exhausted. Ordinarily, if the patient be put in congenial surroundings with proper restraints, heroic methods will be unnecessary. To practice any of these harsh methods upon a patient is to incur her disfavor forever and a day.

The treatment destined to be of lasting good may involve our best resources in therapeutics and correct living. No stereotyped line of treatment will give us satisfaction. Every case is a separate and distinct entity and our therapy must be applied accordingly. The patient's whole environment should undergo a careful scrutiny and whatever about it is untoward should so far as possible be corrected. In no other disease does appropriate treatment so much depend upon the factors of causation as in hysteria. While the causes are often of trifling import, as they appear to us, we should not forget that were we similarly environed we would perhaps be likewise influenced. Emotional conditions constitute the cause in a large per cent of cases. These must be searched out and eradicated. Drugs will do little permanent good. Perhaps an alkaline cathartic taken with some degree of regularity to obviate constipation and a consequent autotoxaemia comes the nearest being an indicated remedy in the way of routine treatment. Tonics may be of value in some cases, as well as a depletive and alterative treatment in others. The uterus should be examined for malpositions, erosions, etc. Reflex irritations aid in perpetuating hysteria, but have not the significance with which they are often

credited. The Weir Mitchell rest cure has been tried with success in some cases, but like all routine procedures has been unavailing in many others. A systematic cold bath treatment has usually been attended by good results. But on the whole hysteria being a psychic, indefinable affection, we must look for its alleviation mainly through the agency of the mind. Suggestion is for this trouble the most potent force we can summon to our aid. It may be used in many and varied ways, as it best appeals to the patient's individuality. "Suggestion" is here used in its broadest significance, and refers to every influence that surrounds the life of the patient. The name "hypnotism" should be strictly tabooed, for to the average mind it implies something morbid and uncanny. After the patient is put in the very best mental and moral atmosphere that is thought to be conducive to her best interests, she should be provided with a routine of some sort which she can herself carry out. This may again be anything that most appeals to her. If, for illustration, she be sensitive in the matter of personal beauty, or show any interest in physical culture, a system of massage or calisthenics may be enjoined upon her. Others may be skilfully led to the point of becoming interested in domestic science, charitable work, etc. Many have forgotten themselves and their ailments after becoming interested in suitable literature.

When the woman is not relieved by any of the measures thus far briefly enumerated, the writer resorts to suggestions given during the hypnotic state. This agent is a two-edged sword, and should be used wisely and conservatively. She should not be impressed with the idea that you are using any mysterious or uncanny force. As above intimated, the term "hypnotism" should not be used when addressing either patient, family, or attendants. Call your treatment by any name that may appeal to her fancy. The idea is to get her whole confidence, so that she may enter into the spirit of the treatment without mental reservation. If the subjective mind can be reached with helpful suggestions the great nerve centers may be pacified in a way that reflexes will be held in abeyance. If this can be sufficiently prolonged until the nerves and ganglionic centers have become in a measure educated, a cure will be the result. As an example more in the way of the concrete we will append a hypothetical case. Suppose it is Mrs. X, in whom there is no cause pathological or otherwise to account for the neurosis commonly known as hysteria, we proceed as follows:

"Mrs. X, please sit in this reclining chair, tilted thus. Relax every nerve and muscle in your body. Let your mind be free from care and anxiety. You have nothing to fear. Make your mind a blank. Think of absolutely nothing. Breathe deeply. Pass into a stage of somnolence. See how nearly you can approach the border-land of sleep without actually sleeping. Your eyelids are heavy and indicate that you are approaching sleep. Your mind is now passive. You will now heed the suggestions I shall give you. Whether you remember the words I say or not, you will nevertheless be influenced and bettered by what I tell you. You have no organic disease, but your nerves produce energy that is not equally dis-

tributed throughout your body. That is why you have so many aches and pains. By proper attention to hygiene and health laws you will be enabled to divide up this energy or nerve force as it should be. You will then be sound and well. You will not be nervous and subject to pain. You will avoid all things calculated to impair your health. For the next few days you will give special attention to correct breathing. You will inspire deeply and will at all times endeavor to get all the oxygen into your system that you can. This will purify your blood, and good, rich blood will feed and strengthen your nerves. As you practice this from day to day you will find that your nerves will constantly grow stronger and that you will soon be restored to your usual health again."

It will be noted that in this sitting deep breathing is made the central thought, that the patient may have something tangible to which to anchor her hopes of a cure. If she carries out this suggestion—and she will if she has confidence in the physician—her mind is kept constantly in a hopeful and expectant attitude. At the next treatment some other central suggestion may be given. At the same time general ideas of a helpful character should be forcibly impressed upon her mind. The physician should be very positive in his assurances that she will receive good and lasting benefit. It is needless to say that in order to secure these benign results the physician must first know the mental status of his patient and likewise enjoy her implicit confidence.

Lateral pharyngitis is regarded by W. Uffenorde (*Archiv. f. Laryng.*, pt. 1, '06) as one of the commonest and most troublesome forms of chronic pharyngitis; there is often a disproportion between the gravity of the local lesion and the severity of the symptoms. Examination in typical cases shows two thick parallel swellings, separated by a longitudinal furrow behind the posterior faucial pillars; these swellings apparently correspond to the salpingo-palatine and the salpingo-pharyngeal folds, of which the former is usually the more affected. The condition is frequently associated with granules on the posterior pharyngeal wall and general tonsillar hypertrophy. The symptoms include all those associated with chronic pharyngitis; but certain painful affections in the neck and laryngeal region are typical. The pain may arise spontaneously or on swallowing saliva, not often on eating; it is always referred to a definite point in the thyrohyoid space or to a point just above the clavicle between the trachea and oesophagus. These points are often sensitive to pressure, and the pain radiates from them in various directions, especially to the ear. Aural symptoms—tinnitus, pain, deafness—existing with normal tympanic membrane, may disappear completely after treatment of the pharyngitis. The etiology is that of chronic pharyngitis in general, but special stress is laid on sinus disease, and hypertrophy of the tonsils and of the posterior ends of the inferior turbinates. Treatment must begin with removal of the cause, the use of gargles and the application of zinc chloride (2 per cent.) to the rhino-pharynx. More pronounced changes require weekly cauterizations with the trichloroacetic acid. Much hypertrophy demands excision, best performed with Halle's scissors, unless the swelling extends upward into the naso-

pharynx, in which event Hortman's conchotome is preferable. The galvano-cautery is not appropriate.

Unreasonable Neighbors.—Prof. Thomas M. Rotch, before beginning a recent lecture at the Harvard Medical School, feelingly referred to numerous skeletons which he had brought to exhibit to the students, as follows: "A most unaccountable experience befell me on account of these beautiful specimens. I like them so much and love to look at them so often that for a time I kept them in a window of my house facing the street. Do you know that after they had been there a few days indignant neighbors called to protest against their display, and when I refused to take action the police were called in and threatened to have me arrested. The university authorities also took action and almost demanded my resignation. I was very much surprised, for I do not see anything about them that is at all objectionable." They are so coldly unappreciative, those Boston people.

Migrainic psychoses are considered by A. Gordon (*Jour. A. M. A.*, Jan. 5, '07), who finds in the majority of cases three abnormal mental states: confusion, mild stupor with hallucinations, and sometimes vague unsystematized delusions and delirium. The hallucinations which are so frequent are generally visual; sometimes they are auditory or gustatory. The confusional state predominates; and quite frequently it is accompanied by illusions of identity, incoherence of thoughts and language and disturbance of orientation. The delusions are all unsystematized and of a fleeting character. Some cases suggest psychic forms of epilepsy. The mental symptoms are generally developed during the attack, when the headache reaches its climax; and they disappear with the headache. Sometimes, however, they continue for twenty-four hours after the subsidence of the migraine. In a few cases the mental symptoms appear at the end of the attack; sometimes only after the attack; they rarely precede the migrainic paroxysm. Are the transitory psychic symptoms the result of the migraine itself or are they manifestations of epilepsy and hysteria grains? Migraine may, in a certain group of cases, be epileptic. Migrainic psychoses are intimately associated with the same causes that produce the attacks themselves; these causes arise in auto-intoxication. Migrainic histories are all identical: constipation, obesity, hereditary predisposition—all figure in the lives of such patients.

The great toe was substituted for the thumb by F. Krause (*Berlin. Klin. Wochenschr.*, Nov. 26, '06) in a patient who had lost his thumb through an accident, and was much injured thereby. The tissues over the stump were freshened; a transverse incision at the base of the great toe was made on its dorsal aspect, the joint was opened and the head of the metatarsal bone was excised to afford more space. The stump of the thumb was then sutured to the wound on the toe, tendon being sewed to tendon, fascia to fascia and skin to skin. For seventeen days the parts were immobilized, at the end of which time the plantar tissues were divided and the suture of the parts completed. The result at the end of three and one-half months was excellent, both cosmetically and functionally. The joint is movable and the patient possesses some actual motion.

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THE AMERICAN MEDICAL ASSOCIATION.

ANY one who has attended the meetings of the American Medical Association for a period of years can scarcely fail to feel surprised and gratified at the rapid development of this body in many directions. Very few organizations of human beings, political, fraternal or professional, have in so short a time, seen so great a change from what ought to be to what is. Indeed, most middle aged and elderly men have acquired the pessimistic view that when a thing is highly desirable, when most well-meaning persons want it, and when there is no particular reason why it should not come to pass, that very thing will prove to be almost unattainable.

Up to the time of the Columbus meeting, in 1899, almost any physician, who complied with certain nominal requirements, could present a paper in almost any section. Many of the papers were not even mediocre in value, but were mere displays of ignorance or prejudice. There was a sort of intellectual aristocracy which held back its best efforts for other societies and which passed from section to section, presenting its second best work to a supposedly admiring proletariat, at any time that it saw fit to interrupt the program prepared, and scorning to listen to the regular course of papers and discussions. There was also a quasi political body, as powerful as it was unofficial, though sometimes dissipating its powers in unconcerted actions, taking little interest in the scientific work of the Association and enjoying (sic) the contempt of a very large minority of the members who cared little who held offices, providing the association continued to exist. The social tone of the entertainments was also far from satisfactory to many and the eager grasping of invitations by some of the women folk was both entertaining and mortifying to those who wished the medical profession to occupy a high place in the esteem of the lay

hosts who have always been generous in their assistance of the local medical bodies.

Within a very few years there was a radical reform in all these particulars. Committees appointed by the sections passed upon the presumptive merits of papers and even, at times, excluded from publication, such as proved to have too little merit. The leaders in scientific thought realized that gallery plays must be stopped and that, while the freedom of the individual member to attend meetings at his discretion, could not be removed, yet there must be a definite, active section membership presenting its best work and courteously attending to the work of others.

Other dreams of a few years ago have also become substantial realities. The Association has become both great and large. Nearly 40 per cent. of the total medical profession of the country is included in its actual or potential membership, and there is no organized opposition nor rival society. Union of the New York State profession—important not only because this State contains about 1-8 of the entire profession of this country, but because of the influence of the metropolis and because the A. M. A. is the offspring of the Medical Society of the State of New York—has been achieved. The political organization of the A. M. A. has been put upon an official footing and an elaborate scheme of interrelationship of national, State and county societies has been carried out. There is a centralized and semi-official board for the examination of drugs, foods, etc., whose reports render the profession independent of the interested and sometimes misleading or absolutely mendacious statements of manufacturers. The journal of the A. M. A. has not only gained in scientific and literary standing, but has achieved wide influence and, in connection with dues, is a pronounced financial success. The profession is rapidly gaining control of the publication of directories, the mutual insurance against blackmail and, on account of its more perfect organization, is enjoying an increased influence over legislation dealing with sanitary, educational and other matters pertaining to the solidarity of the medical profession. Most of the States now have quite satisfactory laws with regard to preliminary education, and the time of training of medical students. The extension of the Marine Hospital service to a general supervision of public health is, in a sense, an anticipation of the demand of the medical profession for representation in government control of such matters as naturally come within their special sphere of influence and knowledge. The Pure Food and Drug Law is a radical and far-reaching invasion of the right long claimed under the Constitution, to defraud one's fellows, and this also is due largely to the influence of the organized medical profession, though not formally to be credited to the A. M. A. Its value has already become manifest and the most notorious fakes have been

not merely exposed, but hampered in their activities for evil.

We realize that there has been much opposition in the ranks of the medical profession and in independent journalistic interests, to "the powers that be" in the A. M. A. In many instances, it has appeared that there was reason for the opposition. Yet, in the face of criticism these powers have persevered and it must be acknowledged by all, whatever their prejudices and preferences, with practical success in nearly every attempt and with a form of success that, barring minor differences of opinion is not only material and temporary but in accordance with the highest ethics and most far-seeing wisdom. It does not seem reasonable that such success could be achieved without sincerity as well as shrewdness and perseverance.

Power, in a machine, in a drug, in a man or in an organization, always implies danger. It is in no spirit of pessimism or censure that we utter a word of warning to the American Medical Association. The theoretically perfect system of organization is in itself a possible source of friction. A grain of sand in a system of cogs, or the slightest deviation from the axis upon which the system revolves means serious trouble, perhaps demolition. A flexible, chain gear, on the other hand, yields to slight deviations and is on the whole safer. There has been serious friction in Virginia, on account of the details of the system of cogs by which the county societies revolve upon the State and the State upon the national organization. Very similar friction seems imminent in New York. Indeed the members of the New York society have, very generally, felt that the abandonment of the former method of electing delegates from a county to the State society, which delegates subsequently became permanent members of the latter, involves a serious sacrifice, made only for the sake of securing harmony. Without expressing an opinion upon this or other possible points of controversy, it seems to us that the details of organization have too little importance to warrant any risk of serious friction or disruption in the future and that a very flexible bond among the various local organizations would be, in the long run, more durable and more satisfactory.

The consignment of all business to a house of delegates is also seriously questioned by many. The present scheme is certainly better than suffering the Association to be guided by an official ring, yet there is an obvious sacrifice on the part of those transacting business at the stated meetings, in the loss of opportunities for scientific and social meetings. Neither can the Association well afford either to miss the presence of prominent physicians at its section meetings, or, on the other hand, to be governed by a lot of men who are not valuable simply as physicians, surgeons and pathologists. Without any serious apprehension of the establishment

of a governing clique, or criticism of the past workings of the house of delegates, we still feel that no organization is wise in entirely doing away with opportunities for initiation of business or protest from the floor of the general meeting. A body of the magnitude of the A. M. A. cannot dispense with representative government, and must leave much of its routine business to committees and fixed boards, yet there should remain at least a vestige of the old ideal of the town meeting.

The very success of the *Journal* makes it important to recognize, early, and formally, the rights and necessities of independent journalism. Already there has been some clash between these interests, and while, on the whole, the tendency to concentration has been wholesome, the possible danger point should be clearly seen and avoided.

The American Medical Association is now a money-making institution, and its earning power is rapidly augmenting. This, in itself, is a danger. We do not so much fear the possibilities of crude personal speculation and graft—the standards of professional men are too high to render these probable danger—as the unwise, partial and ambitious use of the funds that are accumulating. Certain utilities of the profession, as the Directories, insurance against blackmail, establishment of certain forms of research, the reasonable influence of legislation, the expenses of meetings, etc., may properly be paid for from such funds. But socialistic ideas should not be carried to an extreme, nor should the Association support too large a number of employees, especially such as are both servants and masters. Neither should the power and influence of the Association be exerted purely for the selfish interests of the members; specially should a sharp line be drawn between assisting legislation and anything approaching bribery or undue influence for measures that merely favor the profession.

It is a safe rule for any organization of scientific, social or philanthropic scope, not to amass a large surplus. Thus, any accumulation much beyond the immediate needs of present utilities or their reasonable extension, should be an indication for lowering dues and this, in turn, would immediately widen the function of the Association by enabling a larger number of physicians to participate actively in its benefits.

THE PSYCHOLOGY OF JURY DUTY.

WHO could have expected, from a review of the jurymen's experiences in the recent Thaw trial, the rendering of a wise and just verdict? The first talesman was examined on January 23, the trial proper—one of the longest, even in the records of New York County—began on February 4. The proceedings

took up the days and weeks up to April 12, with but one interruption, due to a most grievous affliction visited upon one of the jurors. There had to be heard many witnesses giving conflicting testimony, many fierce legal wrangles, most perplexing hypothetical questions, to which the answers of the alienists—"rational" or "irrational"—were about evenly proportioned between the State and the defense. The climax of the strain came with the closing arguments of both counsel, which were completed in the late afternoon.

Had the excellent trial judge been a psychologist he would have given these twelve men and true a full night's rest after their exhausting experiences during eleven weeks; and then, on the following morning, with bodies and minds refreshed, they would have been prepared for his charge and for a calm and judicious consideration of the case before them. As it was they were compelled, at the end of a weary day, to give the closet attention they were able to his long and detailed summing up. And immediately thereafter they were closeted. They began their deliberations with a prayer. Yet, even here there was some evidence of perturbed psychism. One juror rather demurred. Another, of the Jewish race, agreed if, after the prayer proposed, he might himself offer one in consonance with his faith. Immediately following these sober petitions a first ballot was taken, the result of which was practically unchanged throughout all the remaining ballots. No arguments of any sort prevailed at any time. No doubt these men had made up their minds in the beginning; and were not in the mental condition to be persuaded out of their initial positions.

Arguments continued throughout the first night. He who sought in his chair a moment's sleep was immediately awakened and talked with.

At four in the morning every juror was very tired and tempers were strained to the breaking point. The room contained but one couch. After breakfast earnest discussion began afresh, for the most part among groups of twos or threes.

In the afternoon of this second day, all signed a request to the Judge for cots. It was pointed out that the health of all was directly involved; and that in a public service of such importance as this their physical condition should be safeguarded. To this the judge returned word that he had made a special search for authority which would permit him to comply, but found none. Hence, during the second night chairs and tables had, as before, to be utilized. One juror had an aggregate of but two hours' sleep during the whole forty-seven hours' confinement; the average among them was seven hours. Yet, nearly two full days after they began their deliberations discussion still took place, "though several were so weary they could hardly talk." Upon the final ballot, taken just before

asking to be discharged, all who had modified their votes went back to practically their original positions—seven for conviction of murder in the first degree and five for acquittal upon the ground of insanity.

It is said that latterly the proceedings in the jury room were stormy in the extreme. Voices rose to high pitch; there was much scuffling of feet and dragging about of chairs, to the degree that the court officers became alarmed and were about to interfere. It seems that blows were almost struck; motives were impugned; there were insinuations of dishonesty; things were said and done by these exhausted and overwrought men for which they were afterward heartily sorry and ashamed. And little wonder, under such amazing stress.

There must be a retrial, in October, probably; and then the whole dreary and nauseous business will have to be gone all over again. Will anything be done between to-day and that time to insure that the second trial will not prove as dismally futile as the first?

THE MEANING OF FEVER.

DR. WOODS HUTCHINSON presents a number of very pertinent observations, theoretical in sort, but from which very practical deductions may be made.* He finds that it is the toxins present and not the hyperpyrexia which are generally harmful; and with this most men now agree. One must here distinguish clearly between fever and rise in temperature; the latter is but one of a number of phenomena characterizing the former. Fever is not a single symptom; the word indicates a group—respiratory, cardiac and secretory disturbances, impairment of function, the dry tongue, the throbbing temples, the lassitude, and all the rest (including, of course, though not invariably, hyperpyrexia), with which we are familiar. Fever is the reaction of the organism against the toxins generated by inimical bacteria; when this reaction is successful it is perhaps partly so for the reason that high temperatures are fatal to most germs. Wherefore injudicious attempts to reduce the hyperpyrexia may be injurious rather than salutary. We may please ourselves and our nurses by our triumphs as indicated by the clinical thermometer; but we may nevertheless by this means have rather added to the factors against which the organism must struggle; we may in "reducing fever" have also reduced the strength and the resisting power of the patient.

Again a subnormal temperature may exist in "fever." Here no doubt an excess of toxins, or very virulent toxins have overcome the resisting forces within the organism; this is the invariable condition in cases

* W. Hutchinson. "What is Fever?" *The Practitioner*, April, 1907.

when we must fear a fatal issue. A hypothermia may just as surely be a sign of intoxication as an elevation. This we repeatedly observe in such diseases as cholera, tuberculosis, diabetes and uræmia. We would come upon it oftener if we were to seek it more than we do.

Hutchinson very wisely advises us to "treat the intoxication and not the fever." The rise in temperature is a fair indication of the amount and quality of the toxins and of the extent of their disturbance of the body mechanism. We must then, instead of treating the hyperpyrexia simply as such, seek to discover the germ product and to neutralize or eliminate this. Here appears to us to be a most inviting field for the serum therapist. In fever the amount of waste in the blood is of abnormal quantity; and the heart tries to drive it peripherally back to the lungs and the skin, for elimination. Yet here the very toxins which thus stimulate heart action, paralyze also the general metabolism and that of the sweat glands, the respiratory epithelium and the glomeruli and tubules. They will even, late in fever, contract the dermal capillaries, so that the skin becomes pale and shrunken, instead of being red and full. Whatever, then, tends to relieve the surface conditions and to arrest the paralysis of the sweat glands and of the pulmonary alveoli, will help to get rid of the infectious products. So that baths and packs act in a far more potent and radical way than merely by lowering the temperature. They deepen the respirations, steady the heart, increase the flow of urine, restore the pulsations of the "peripheral heart" and thus do much more good in fever than by a mere increase of the escape of heat.

THE CAREER OF LORD LISTER.

NO greater career, broader in its fulfilments, helpful to humanity in all its aspects, has been found in human history than that of the English surgeon now completing his fourscore years. He had the good fortune to live at the right time and seize great opportunities.

As Sir Joseph himself wrote, when he was Sir Joseph some years ago:

"At the International Congress in London in 1881 Robert Koch demonstrated in King's College his then new method of cultivating microbes upon solid media. The illustrious veteran Pasteur was present at the demonstration; and at its conclusion exclaimed, 'C'est un grand progres, monsieur.' How vast have been the extensions of our knowledge which have resulted from that great step in advance! Of these none perhaps have been more striking than Koch's own brilliant discovery of the cholera microbe, picked out without unerring precision by his beautiful method from among the multi-

tude of bacteric forms that people the intestinal contents, and grown and studied with as much definiteness as if it were a cabbage or a rose."

Already had Lister been working in this field in a practical way. In the next decade following this demonstration much more was learned of the nature and habits of the micro-organisms which invade our bodies. Lister utilized the discoveries of Metchinkoff, who, having long studied ultra-cellular digestion in the amœboid cells which form the main mass of the body of sponges was prepared to observe and rate at its true value the analogous process in the wondering leucocytes in vertebrata. Metchinkoff found that these migratory cells feed like amœbæ, and while almost omnivorous, have a special liking for bacteria, taking them into their protoplasmic substance and digesting them, thus preventing their indefinite propagation in the tissues.

Lister at once accepted Metchinkoff's theories, which he demonstrated himself in surgical practice. At the London congress Lister brought forward an experiment which proved that a blood clot within the body may exert a powerful anti-bacteric agency. He soaked a small piece of linen cloth with putrid blood, mounted it by means of a silver wire in the interior of a short glass tube open at both ends and slipped it into the jugular vein of a donkey. After two days the venous compartment was removed and the coagulum was investigated. In and near the glass tube it was in a state of advance putrefaction, and abounded with bacteria. But near the wall of the vein it looked like a recent clot; it contained no bacteria and gave off no putrid odor.

Lister believes that this experiment shows the real reason of the success in surgery of men who did not use antiseptic means, such as Bantock and Lawson Tait. He truthfully observed that "Both are scrupulously careful in the purification of their sponges; and if there is one thing more important than another in the antiseptic management of wounds of the peritoneum, it is the avoidance of impure sponges. Both observe the strictest cleanliness, which is surely an antiseptic precaution, for it owes its virtue to the fact that it presents the septic organisms in the smallest possible numbers and thus reduces their power for evil to the utmost that can be done by any measures that are not germicidal. Both these surgeons also wash out the peritoneum with water, so as to get rid of coagula without injuring the peritoneal surface by rubbing it with sponges; and this is done in order to avoid the risk of sepsis in residual clots. The drainage of the peritoneum is another antiseptic measure, and Mr. Bantock, I am informed, has the sponges which absorb the serum wrung out of sulphurous acid and changes them very frequently."

Lister was brave enough and broad enough to acknowledge his mistakes when he realized them. As re-

guards the "spray" he acknowledged that he felt ashamed that he should have ever recommended it for the purpose of destroying the microbes in the air, for "if we watch the formation of the spray and observe how its narrow initial cone expands as it advances, with fresh portions of air continually drawn into its vortex, we see that many of the microbes in it, having only just come under its influence, cannot possibly have been deprived of their vitality. Yet there was a time when I assumed that such was the case; and trusting the spray implicitly as an atmosphere free from living organisms, omitted various precautions which I had before supposed to be essential. Thus in opening the pleura in empyema for the purpose of evacuating the pus and introducing a drainage-tube, and afterward in changing the dressings, I had previously applied over the opening a piece of cloth steeped in an antiseptic lotion to act as a valve and prevent the entrance of air during inspiration. But under the spray I omitted the valve and allowed the air to pass freely in and out of the pleural cavity, although I used the spray at such a distance from the producing apparatus that it was dry and transparent, with the particles of carbolic solution necessarily widely separated from each other. And these particles cannot have been in more than instantaneous contact with much of the dust before it was drawn within the chest and securely protected by the pus or serum there from any further action of the antiseptic. It is physically impossible that the microbes in such dust can have been in any way whatever affected by their momentary presence in the spray."

Lister, like the real hero, has been modest in his words and his demeanor, and in referring to his own work has done so in no boastful spirit, but simply in the hope of stimulating others to more thorough earnestness in the pursuit of aseptic and antiseptic surgery.

OUR ICE SUPPLY.

THE season when a great deal of ice will be used by our people will presently be upon us; so that some observations with regard to its purity and its possibility as a disease conveyer are *a propos*.

Some analyses were recently made by Dr. Jackson, of ice taken from many points along the Hudson River; and his report should on the whole assure those who are likely to entertain morbid fears concerning the quality of the ice which constitutes the greater part of New York City's supply. He indicates that, while the Hudson product is perhaps not of the very best, and cannot be called entirely safe, the danger from it is so much less than such as we might reasonably fear from other sources, that it can "without any mad recklessness be ignored for the present."

Most of the ice cut for New York City is taken from parts of the river where the conditions are comparatively good—as good, believes the *New York Daily Times*, as they are on any river or lake in a well populated region. If our ice is rather hysterically termed "dilute sewage," the dilution is nevertheless so great that there is not much occasion for worry or excitement over it. Very few of us have a good word to say for the "ice trust"; nevertheless, the fair-minded must admit the justness of the iceman's observation that, instead of expecting him to find ice for us in remote regions we ought to reform our middle-age method of sewage disposition. In practically all the communities along the Hudson this waste is permitted to run into the river; sooner or later we must reach the degree of civilization when that proceeding will have to be discontinued. Our experts know perfectly well the methods by which sewage can be disposed of safely and profitably. It can be put to much better use than as a means to wholesale infection. Until such reforms are instituted one had best not use ice, the absolute purity of which is suspected. Nor need ice itself be used; for cheap and simple apparatus is now for sale by means of which both liquids and solids can be cooled without ingesting the ice itself.

X-RAY FATALITIES.

IT would seem that the frequent advice offered to physicians in the medical press concerning X-ray dangers has not been heeded nearly as much as it should have been. It is most deplorable that, with the knowledge now at our disposal concerning these dangers casualties should be so frequent. Among recorded fatalities are the following: Dr. Weigel, of Rochester, was so injured during his experiments that three fingers of his left hand had to be amputated, then that whole member, then his left arm at the elbow, and finally at the shoulder; upon this death mercifully intervened. Since then have died because of this destructive agency an assistant to Thomas A. Edison, a Boston physician and Bertha Fleishman, of San Francisco. And very recently a fate quite akin to that of Dr. Weigel was suffered by Prof. Wolfram C. Fuchs, of Chicago, who first became afflicted in 1905, and in the fall of that year the first joint of the right thumb was removed; from that time to his death five operations were sustained by him, first for the removal of portions of the fingers of both hands and later for a removal of the muscles of the right pectoral region.

We some time ago set forth quite explicitly in these columns* the dangers one must fear from this agency, beneficent and useful as it is when properly understood and controlled. Since that writing Brown and Osgood†

*"X-Ray Warnings." November, 1904.

†"X-Rays and Sterility." *Am. Jour. Surg.*, April, 1905.

have shown that the emanations from the tube have the power to affect subdermal tissues without apparently affecting the skin itself; and their investigations of cases in men from 22 to 40 years of age are to the effect that repeated prolonged exposure to an X-ray atmosphere produces sterility in the human subject.

THE MEDICAL UNIFICATION BILL.

THIS bill, which rather revolutionizes the system of State control of the practice of medicine in New York, has received the governor's signature and is now a law. With regard to certain of its aspects all good physicians have reason for mutual gratification. It substitutes one board of medical examiners under the auspices of the Board of Regents in place of the three boards now having jurisdiction and representing the "allopathic" (whatever that preposterous appellation may mean), the homeopathic, and eclectic State medical societies. We have in our April issue commented with gratification upon this feature of the new law, and shall not dilate further upon it here. We feel convinced and do most earnestly believe that all our brethren of whichever of these three divisions (how unfortunate there should be any divisions at all) will in the very near future find this provision a most beneficent one, both to all able and qualified practitioners and to all lay citizens. It is a measure which will redound immeasurably to the dignity of our calling; it stands for the fact that we desire no school of medicine but are all of us anxious only to discover and to adopt in any case the most effective means of cure. And it stands, furthermore, for the fact that we are all of us ready to work together to this most humanitarian end.

This new law creates also a new definition of the practice of medicine which is perhaps more sweeping than any we have ever had. It designates as a physician:

"A person practicing medicine within the meaning of this act, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition, and who shall either offer or undertake, by any means or method, to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity, or physical condition."

The phrase in this definition "except as hereinafter stated" has to us a sinister meaning. The law exempts from its application, for instance, "the practice of the religious tenets of any church." This is evidently for the benefit of the "Christian Scientists." It is pitiable indeed that our lawmakers in Albany do not seem to have appreciated the distinction between religious liberty and license to commit inhumane acts and sins of omission in the name—not of religion, but of a pseudo—religion.

Again, it is provided in this bill that each candidate for an osteopathic license must have studied three years in a college of osteopathy satisfactory to the regents. After 1910 the term is extended to four years. There should be, we fear, considerable difficulty in locating any "D. O." college which could meet that criterion.

Nevertheless, the trend of this new law is beneficial; and it will tend, we hope, to drive many charlatans and medical tricksters out of practice.

THE PREVENTION OF DEAFNESS.

WE are all now recognizing the necessity of yearly visits to the dentist, if for no other purpose than to have our teeth looked over; and as regular visits to the ophthalmologist are now a matter of course. But it is not generally understood that the otologist should as frequently be consulted. It is stated that 95 per cent. of all deafness could be prevented if precaution were taken to have examinations of the ear made yearly, or after a cold. Sound perception is largely quantitative; wherefore intelligent people often allow their hearing mechanism to become wholly affected without noticing the abnormality. Bryant* cites the very instructive case of a young man who had lost practically all of his hearing before he became conscious of the fact. He had a "running ear," which prevented his obtaining satisfactory life insurance. He was totally deaf in this member; and had in the other ear only 1-14,400 of normal hearing, yet he claimed to suffer no inconvenience on account of deafness—he did not, indeed, consider himself deaf. The hearing distance of his good ear for a watch was four inches; the normal distance at his age (23) is forty feet.

Bryant finds this astonishing unconscious loss to be due to the fact that, whereas perception by the eye is qualitative, sound perception is, as stated, quantitative; and the normal individual has many times the "amount" of hearing actually needed in densely civilized communities. His attention is not apt to be called to severe losses of hearing until too late to check advanced disease.

The changes which come most insidiously are of two kinds: the inflammatory, and those chiefly due to defective ventilation. The end results in either case are much the same. The inflammation first causes congestion and increases connective tissue; then result contraction, anemia, faulty nutrition, atrophy and degeneration. The choking of the Eustachian tube causes the same results, without intervention of inflammation, directly through the congestion and stagnation of blood and lymph. Defect in the manometric balance of the tympanum directly affects the drum membrane. By negative pressure the membrane is sucked inward, flexing

* Bryant, W. S., "The Preservation of Hearing," N. Y. Med. Rec., March 2, '07.

the ossicular chain. By increased pressure the membrane is pushed outward, extending the chain. Persistence of either of these positions is bound to work lasting detriment to sound transmission; and the resulting structural alterations have no tendency to repair without surgical aid. The atrophy, when once well under way, goes through all the series of changes consequent to faulty nutrition, involves the drum and its contents, and even spreads to the labyrinth.

Decrease of sound perception is the most delicate measure of general nervous exhaustion; the beginning of serious nervous changes may thus be indicated.

THE TRADE UNIONS AND CONSUMPTION.

CORNET has well observed that the consumptive workman is more likely to infect his fellow-workmen than the members of his own family; this is especially so in unhygienic factories or among trades dangerous in this respect—such as those in which much dust is generated. It is therefore most gratifying to note the interest which American Trades Unions are taking in the present day anti-tuberculosis propaganda. For more than three years past, declares Mr. Paul Kenneday, the secretary of the Committee on the Prevention of Tuberculosis of the Charity Organization Society, they have taken a notable and effective part in New York City in the fight against the disease. It would indeed seem that in place of ignorance and indifference, there will soon be a public educated in the many simple methods of prevention and cure. It is becoming recognized that it is worse than foolish to put off an honest and real attempt to get well; that sure cures are merely ways of getting money under false pretences, and that it is actually inviting disease and death to let a careless consumptive spit about the shop or the home.

Such facts are being presented before the unions by means of short talks, many of which are illustrated with lantern slides; in one week nearly a score of such demonstrations were given.

We may thus hope that in the future the present annual tribute of 10,000 lives which our community pays to the tubercle bacillus may be very greatly reduced; that our trades unions will do their best to this end by holding up the hands of the authorities in their work of stamping out the disease, and that there will presumably be a more vigorous and more determined demand than ever for thorough-going factory, tenement house and Health Department regulations.

Dr. S. Wier Mitchell recently celebrated his seventy-fifth birthday; let us hope he will at least follow Oliver Wendell Holmes' example when he declared: "I am eighty years young to-day."

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Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics and Toxicology in Cornell University, and Tracey C. Becker, A.B., LL.B., Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo. Second edition. Volume two. Octavo. 1008 pages. New York: William Wood & Company, 1907.

The second volume of this excellent work contains: The Medico-Legal Consideration of Wounds, by Woolsey; of Gunshot Wounds, by Park; Relations of Electricity, by Bullard; of Death from Mechanical Suffocation, by Lamb; Death from Submersion, by Rosse; Determination of Survivorship, by Becker & Parmenter; Abortion and Infanticide, by Cameron; When Medical Examination of the Living is Permitted or Required by Courts of Law, by Becker; Pregnancy, Labor and the Puerperal State, by Edgar; Sexual Incapacity, by Rosse; Rape, by Edgar; Unnatural Crimes, by Rosse; and Railway Injuries, by Outten. These subjects are ably discussed from their practical side, in order to make the work of the greatest service to the practitioner. We have no hesitation in commending it.

A Practitioner's Handbook of Materia Medica and Therapeutics. Based upon established physiological actions and the indications in small doses. To which is added some pharmaceutical data and the most important therapeutic developments of sectarian medicine as explained along rational lines. By Thos. S. Blair, M.D., member American Medical Association, member Visiting Staff Harrisburg City Hospital, etc. 12mo. 253 pages. Philadelphia: The Medical Council, 1907.

This little book is the result of the author's personal study, investigation and tests in practice of the medicinal agents prepared by the pharmacists of the different schools in medicine, together with the methods of manipulation. It is dedicated to the optimist in therapeutics, and he, with all discriminating students of therapeutics, will find in it much that he has long been looking for.

It seems strange that such a book was not written years ago, as it would have helped to bridge over the differences in medical opinion and action. However, the majority are better prepared to receive it now than at any previous time.

The work has been done in a judicious, painstaking, and fairly critical manner, by a competent hand, and the result is a "Series of Studies, and not a treatise; a volume of suggestions, and not of principles," by a seasoned "regular" who can recognize common ground of practice when he sees it.

In his preface the author says this "is an attempted rational restudy of the materia medica with the two main points in view of emphasizing what is really important as regards the employment of drugs in their larger dose, and, more especially, of directing scientific and clinical attention to the employment of drugs to meet their indications in small doses."

Without egotism, we may say that the author has followed the plan upon which the Times was founded, and upon which it existed for so many years!

It is better that this work should be begun by a "regular," and we hope it may be continued by the laboratory investigators, clinical teachers, and physiologists, of which we have so many thoroughly competent representatives at the present day.

Dr. Cabot, of Boston, has recently shown the proper spirit in this investigation, and could be a great helper in such an undertaking. Like all scientific effort, it must be approached without prejudice or sectarian bias.

We heartily commend this book for careful reading to those who may be interested in its subject.

Practical Physiological Chemistry. A book designed for use in courses in practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk, M.S., Ph.D., Demonstrator of Physiological Chemistry in the Department of Medicine of the University of Pennsylvania. With two full-page plates of absorption spectra in colors, four additional full-page color plates, and 126 figures, of which 12 are in colors. Octavo. 416 pages. Price, \$4.00. Philadelphia: P. Blakiston's Son & Co., 1907.

The author has followed in this treatise a plan which he has found satisfactory in his own classes, and which differs from those previously proposed, in the treatment of the foodstuffs and their digestion. A chapter is devoted to the study of "Decomposition Products of Proteids" and another to the important subject of the examination of the feces for purposes of diagnosis. The subject of solid tissues is unusually fully elaborated.

As a text-book, the work is fully up to date, and must be placed in the very front rank.

Tuberculosis as a Disease of the Masses and How to Combat It. Fourth issue, revised and illustrated, with supplement on Home Hygiene, School Hygiene, Installation of the Sanatorium Treatment at Home, and a Historical Review of the Anti-Tuberculosis Movement in the United States. Prize Essay. By S. A. Knopf, M.D., New York, Director in the National Association for the Study and Prevention of Tuberculosis, etc. 104 pages. New York, 1907: Fred P. Flori, 514 East 82d Street; also for sale by "Charities and the Commons," 105 East 22d Street, at 25 cents per copy.

The present issue of this useful pamphlet which has already appeared in many editions in numerous languages, comes to us with an important supplement covering such subjects as Home Hygiene, School Hygiene, Installation for the Sanatorium Treatment at Home, etc.

We are glad to note that thousands of copies are to be distributed gratuitously by the State Department of Health, so that it will reach many who are too poor to buy a copy.

This prize essay was intended for the masses, and every legitimate means should be employed to place a copy in the hands of all who need the wise instruction which it affords.

The Common Bacterial Infections of the Digestive Tract and the Intoxications Arising from Them. By C. A. Herter, M.D., Professor of Pharmacology and Therapeutics in Columbia University, Consulting Physician to the City Hospital. New York. Oc-

tavo, 360 pages. New York and London: The Macmillan Company, 1907.

This volume contains an elaboration of the views presented by the author in a lecture before the Harvey Society. The text does not aim at a systematic discussion, neither does it claim to present fully the literature of the subject. The object is to give a better insight into the bacterial conditions of the digestive tract, with a view of furnishing practitioners with new and reliable indications as to the progress in cases of infection.

CORRESPONDENCE

POST MORTEM OF SUICIDES.

To the Editor of the MEDICAL TIMES:

Since in the past two decades the pathological histology of the brain in connection with insanity has made some advancement, the suggestion arises as to conducting such investigations in the case of those who commit suicide.

It may be remarked that negative results in autopsies prove nothing against insanity without mentioning the very inadequate knowledge of medical chemistry of the brain.

It should be noted, also, that in the early stages of insanity the clinical symptoms often rest on nervous fluctuations of blood pressure, as in anæmia, hyperæmnia and œdema, the traces of which may be lost in death.

We also know characteristic anatomical bases of a number of acute and chronic affections, which primarily or secondarily alter mental activity and can end in suicide. In acute derangements of consciousness, the nearer in time the suicide occurs, the more probability there is that the act was not free.

Diseases Causing Suicide. The most frequent acute physical causes of suicide are fevers, as in typhoid, acute miliary tuberculosis, smallpox, erysipelas (especially of the face), severe pneumonia, especially the pneumonia of the apex in children, scarlet fever and measles. The delirium of fever, which usually manifests itself in dreams or hallucinations, may deceive the judgment and cause suicide.

In some acute diseases, with great loss of the humors of the body, as in cholera and pleurisy, the mental disturbance appears as collapse or delirium from inanition. The greatest disturbances are in typhoid. Hoffman² and Buhl consider the delirium of the first week due to œdema of the piamater and cortex, and the later mental disturbances to pigment atrophy of the ganglion cells of the cortex and atrophy of the whole brain. Central changes can also take place in facial erysipelas, pyæmia, etc.

From the investigations of Virchow, Weber, Liebermeister and others, we know that severe fever causes a parenchymatous degeneration, which in autopsies we have to note also in the liver, spleen, kidneys, salivary glands, pancreas and heart and trunk muscles. This degeneration is observed in cases of poisoning by phosphorus, arsenic and mineral acids.

Epidemics of Suicide. The influence of fevers becomes important in epidemics of suicide that were attributed to the conditions of the weather. There were such epidemics in June of 1697, when it was very warm.

In Rouen, in 1806, and in Stuttgart, in 1811, there were similar epidemics. At the end of the great smallpox epidemic of the last century thousands in India hung themselves on trees because they believed that God had given them to evil spirits to be punished.

Influence of Organic Disease. In suicide the individual often wavers. The least little circumstance may determine his act. Thus, a university student told the writer that she was about to shoot herself when a caller knocked on her door. If a temporary condition can so affect a mentality morbid state either for the better or worse, it is easy to see how any organic disease, drawing on the vitality continuously, or physical abnormality, might be the cause of suicide even in those of cheerful disposition. The presence then of any organic disease or other abnormalities revealed by an autopsy may be of significance in the investigation of suicide.

It will perhaps be of interest and value to give the general results of the comparatively few autopsies that have been made on suicides.

General Conclusions from Autopsies. From a study of the brains of suicides Schwenendik¹ concluded that the anomalies were of such importance as to make one regard these brains as irregular and abnormal.

Man 50 years of age.—A strong man committed suicide by potassium cyanide. He belonged to one of the best families. He had been operated upon for a rectal fistula, and the fear of a second operation was the only reason known for his taking his life.

The main interest in his brain was the rudimentary formation of the falx cerebri in connection with the asymmetrical arrangement of both frontal lobes. An arrest of development occurred which limited the growth of the remaining falx cerebri.

In connection with this anomaly is another peculiarity in that the left hemisphere was more developed than the right in this region.

Man 43 years old.—The brain was peculiar in a number of ways. The large number of convolutions limited the size of the single gyri. Transverse and longitudinal convolutions were very unequally divided on both sides.

Results of 105 Autopsies. Of the 105 autopsies on suicides described by Friedemann, 13 cases were due to fever, and 12 probably due to the same cause—that is, 25 per cent.

In six cases uremic delirium was one of the leading causes. In one case malnutrition of the gray substance in the right hemisphere, and the same in one case in the small brain. There were anomalies of development, especially in epileptics, idiots and insane. There were 9 cases with chronic meningitis and four with chronic hydrocephalus, 3 with apoplectic basis and 3 with sclerosis of the arteries of the brain, 20 with hyperostosis of the skull. In one case pthisical insanity was the main cause; in seven cases, syphilis. Defective heart valves were present in 4 cases, and hypertrophy of heart in 6, stomach catarrh was the cause in one case, and chronic alcoholism in 7 cases.

Single Cases. Out of the 105 cases, 17 are given as examples.⁴ The youngest individuals have been selected: Tailoress, 18 years of age.—Poisoned by phosphorus (June); scrofula, cicatrices and calcareous degeneration of left lung; club foot on the left; ascaris and oxyuris. She was probably not accountable.

Store girl, 24 years of age.—Hanging (September); calcareous nodes of the apex of the lungs, splenic infarction,

incipient chronic endarteritis of the aorta and carotids.

Servant girl.—Oxalic acid (April); spleen small and flabby, heart flaccid, valves normal, ovaries large, a cyst in one, the size of a cherry; on the surface of one was a small pigmented cicatrix, uterus small.

Servant, 22 years old.—Drowning (July, 12 o'clock at night); residuum of a former pleurisy and pericarditis; uterus with 6 to 7 month-old child; hyperphasia of the liver, spleen, kidneys and supra-renal glands; hyperaemia of contents of skull. She was probably irresponsible.

Girl, 9 years of age.—Hanging (March); traces of endarteritis of the aorta; trichocephalus, oxyuria, ascaris, extensive swelling of the follicles and of the peyer's glands near the iliocaecal valve; slight swelling of the follicles of the large intestines; slight swelling of the mesentery glands; typhoid. She was irresponsible.

Girl (puella publica).—Drowning (December); hyperaemia of the brain, menstrual uterus, extensive residuum from perimetritis; obliteration of the right tube, smell of alcohol in the body; chronic catarrh of large intestine. She was probably irresponsible.

Girl, 23 years old (puella publica).—Phosphorus (March); compression of the lower lobes of the lungs, absence of the middle lobe; menstrual condition of uterus and ovaries.

Servant girl, 21 years of age.—Hanging (September); pleuritic adhesions on the right side; large swelling of follicles in stomach and intestine; slight swelling of the mesentery glands; vaginal catarrh, hyperaemia of the urethra; typhoid in beginning. She was irresponsible.

Store clerk, 19 years old.—Shooting (October); defect of sphenoid bone; very strong thymus; thyroid process enlarged on left side; ascaris; probably syphilophobia.

Sailor, 22 years old.—Shooting (June); absence of middle commissure; many miliary tubercles and several nodes, indurated, with central caseous condition in the left lung; fresh circumscribed groups of tubercles at apex of right lung with hyperaemia of surrounding tissue; large hardened liver with petrified pentastomum; chronic meningitis. He was probably irresponsible.

Gold worker, 21 years old.—Cyanide of potassium (June); flabby heart; healed abscess of the duodenum; deep scar of the right lobe of the liver. He probably suffered with syphilis.

Farmer, 22 years old.—Shooting (May); bad digestive condition of stomach and intestines. He suffered with syphilis, very probably.

Servant girl, 17 years old.—Drowning (December); recent endocarditis, upon a past mitralis; hyperaemia of the head and contents of skull; hyperaemia of thyroid gland, liver and kidneys; swelling and hyperaemia of the spleen and genital organs; great swelling of the tonsils with collection of pus; severe stomach catarrh; hyperplasia of the endometrium; scarlet fever, probably. She was irresponsible.

Milliner, 22 years old.—Shooting (June); extreme deformity of both suprarenal glands; fatty liver; tonsilitis on both sides; swelling of spleen; menstrual uterus, no hymen; probably scarlet fever. She was irresponsible.

Student of philosophy, 25 years old.—Hanging (August); hyperostosis of the skull; whitish trübung of the arachnoidea; residuum of acute meningitis. He was irresponsible.

Servant girl, 20 years old.—Hanging (December); ovaries with very large follicles; hyperaemia and thickening of the mucous membrane of the uterus; antelexion of uterus; thickening and osteosclerosis of the skull; sclerotic center with large petrified nerve fibers in the right hemisphere; ascaris trichocephalus, oxyuris. She was not responsible.

Waiter, 20 years of age.—Shooting (March); large cavern in upper left lobe with indurated thickening of the surrounding tissue, confluent tuberculosis and recent pleurisy, slight tuberculosis of the pleura of the left upper lobe; hyperaemia of heart, lungs and abdominal viscera; numerous hyperaemic points in liver; recent enlargement of spleen; acute miliary tuberculosis very probable. He was irresponsible.

¹ Senate Document, No. 187, 58th Congress, 3d Session.

² Untersuchungen Ueber die pathoanat. Veränderungen der Organe beim Abdominal Typhus. 1869.

³ Untersuchungen an zehn Gehirnen. Verhandlungen der physikalischen Gesellschaft. 1881.

⁴ Friedemann, I. H., Pathologisch-anatomische Befunde bei Selbstmördern, Kiel, 1890.

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ARTIFICIAL SUPPORT FOR THE VISCERA.

The past ten years has seen great improvement in the use of supports for the viscera. This adds to the comfort of the patient, produces organic readjustment, tones up impaired functions, regulates abdominal circulation and consequently improves the general health.

Such treatment, however, is not especially new, for example, Taylor in a recent issue of the *New York Medical Journal* states that Longstreeth has been using such methods for over twenty-five years. Taylor points out clearly also that most of these supports fail to give full value because the essential point of support must be the tissues of the upper thigh, for the ground support must be solid. This was accomplished years ago by Longstreeth by encircling the pelvis between the brim and the external trochanter, a space of five inches usually, by a powerful belt keeping the upper and lower edges as nearly parallel as possible. In the words of Taylor:

"From this position of advantage in a woman (whose hips flare to the thigh levels) pressure can be regulated to support the whole of the structures lying above. The belt can be worn alone in some instances of women (usually the slenderer ones) and in men, whose hips are always practically vertical. It is more satisfactory in women to have the belt attached to any well fitting, suitable corset. It should be adjusted with extreme care over the corset in place, then marked, and later sewed on. It will be seen from the description further on that, when properly adjusted, the direction of support should be from the firm basis of the most powerful tissues in the body, horizontally and uniformly upward. Thus the pelvis is held firmly in its normally horizontal position; the vertebral column is encouraged to remain at a right angle to this, practically vertical, which is its normal position. We then have the two most important, practically the only available, groundworks for visceral support, the level pelvis and the vertical back bone, placed in the best fundamental conditions for affording aid and succor to the soft tissues which depend upon them. Let me repeat a fact, obvious to those who wear the device, that with it they feel compelled to stand erect. This erectness is real, not fancied. A woman wearing a straight-front corset thinks she is standing erect, but she is not. The unusual degree of pressure on the lower abdomen of the anterior downward projection develops a tendency in the wearer to draw the abdomen back from this point and hence to protrude the buttocks posteriorly and exhibit an exaggerated lumbar curve. Even when this shrinking away occasionally induces a relatively level position of the pelvis, there is afforded no uniform base of support horizontally, so essential to proper sustenance of relaxed viscera.

Visceral ptoses are unusually prevalent, especially in neurasthenic cases. Unfortunately the symptoms of these conditions are generally obscure, so that the doctor and patient overlook their existence, or, if diagnosed, their importance. All mechanical aids should also be regarded as temporary, for the real cure is to encourage repair in the damaged structures, by the use of physical education. All corrective belts, special corsets and girdles should be studied most carefully, constituting a branch of therapeutics fully equal to any other.

RETROSPECTIVE

Bronchial Asthma.—Nearly all cases are of reflex origin, most frequently nasal (Melvin, *Denver Med. Times*). When no definite origin can be elicited, the cases are to be divided into three classes: Those which are not benefited by treatment; those whose paroxysms have been diminished in number and severity, but which are, nevertheless, chronic cases; those which can be called cured, all of whom had not been affected more than a few months or not over three years. To begin with, Melvin prescribes diet and regulates the metabolism so far as is possible. All irrational substances must be avoided. Tea, coffee, meats and sugar should be strictly limited, the digestive functions should be attended to. Next, alkalies should be given before meals and at bedtime; these must be continued over a long period. Next in importance is the salicylate of soda in ten-grain doses after meals. For the relief of the paroxysm the regular A. C. E. mixture may be given; one or two teaspoonfuls may be inhaled; the stimulant and relaxing effect of this mixture is more beneficial and safer than chloroform inhalation. The patient himself may place some absorbent cotton saturated with the mixture in the bottom of a small bottle, and he may inhale the fumes through the nose when the paroxysm comes on. Melvin has never come upon an instance of the drug habit (in the aged, at any rate, this need not be feared). Melvin has seen only occasional relief from the use of glonoin, amyl nitrite or pilocarpin. In some chronic cases stramonium and potassium nitrate inhalations are effective. The following prescriptions have been found effectual in this most distressing disease: \mathcal{R} Ext. grindel. robust. fl., $\mathfrak{z}\text{ij}$; tr. lobeliae et tr. bellad., aa $\mathfrak{z}\text{ij}$; kali iod., $\mathfrak{z}\text{iss}$; syrup, $\mathfrak{z}\text{ij}$; aqua, q. s. ad $\mathfrak{z}\text{iv}$. M. S.: $\mathfrak{z}\text{ij}$ four times a day. Or, Sodii arsenat., gr. iss; aqua, $\mathfrak{z}\text{x}$. M. S.: $\mathfrak{z}\text{ss}$ before breakfast and supper. Or, Antimon. et potass. tart., gr. i; potass chlorat., gr. v; aqua, q. s. ad $\mathfrak{z}\text{iv}$. M. S.: $\mathfrak{z}\text{ij}$ q. 2 hours.

Vaccination Against Tuberculosis.—Calmette and Guérin, whose work concerning this disease has been very original and important, with wise and scientific caution, express the hope that their present investigations may lead to a means of vaccination by a simple process which utilizes the digestive tract, considered by them the normal channel of tuberculosis infection. Tuberculosis animals (oxen and goats) have been injected preferably at an early age, when the intestine has greatest absorbing power, with very small quantities of bacilli which had been rendered comparatively non-virulent; these animals have thus been rendered immune. Here Calmette and Guérin are in accord with Maragliani, von Behring and others.

Workingmen's insurance in Germany was recently discussed by Dr. Otto Hötzsch in the New York Academy of Medicine. Under the system of imperial insurance the workingman must be insured against sickness, accident, old age and disablement. But he is only able to pay a small portion of the premium, and often nothing at all. The employer must contribute a fixed proportion of it, while the remainder is paid by the State. About a million marks are daily applied to this purpose in Germany, the full benefit being enjoyed by the working people. Although the Social Democratic party voted against this legislation, Bismarck carried out his purpose; and it is mainly to him and the first

Emperor William that the German workmen and their families owe the great blessings of this insurance enterprise. "Clearly," states Dr. Höttsch, "such legislation, extending over the whole, and touching the life of every one, also furthers the unity of the empire and at the same time the power of the State."

The standardizing of Trypsin and Amylopsin preparations should be done at once; and these remedies for cancer should be made to conform with the provisions of the National Pure Food and Drugs Law. There has been much testimony to the real healing value of these agencies, although they can by no means be claimed as sure specifics in the present state of our knowledge concerning them. Undoubtedly, then, they should not only be of stated proportions, but also of a uniform strength for a definite period, just as antitoxins and such drugs as strychnine, digitalis and the rest are standardized under legal penalties for violation. Tests of these new agents, which are digestive juices of the pancreas, now differ in their commercial forms "in ratios actually as high as that of one to five hundred," states Saleeby. A test which can be used, and which is, in fact, now used by the best chemists, is that of the late Sir William Rogers—the "metacasein test," in combination with the chief proteid of milk of a uniform quality. Standardization, states the *daily Times*, will accomplish two things. Through the operation of the drugs law it will drive out all worthless preparations that would otherwise flood the country when firms, all and sundry, enter into competition; and it will enable medical men to attack intelligently the question of dosage, which is at present impossible of solution.

Color-blindness is very succinctly described by Dr. E. A. Ayers in the *March Century*; and the exposition is reinforced with diagrams and colored plates. By means of the latter one may easily test his own vision. This defect has been recognized for only one hundred and thirty years, though its existence has probably been coeval with the race. Possibly even some simians are color blind. Among amusing instances given by Dr. Ayers is that of the Quaker Dalton, an English chemist, who, in 1774, described his own case. He attended a meeting of the Society of Friends arrayed in scarlet hose; and was almost excommunicated because of his gaudy and most worldly raiment, so suggestive as it was of the dreaded "scarlet woman." He made matters much worse by denying the charge. He was, in point of fact, red blind. When he received from Oxford the "investment of the scarlet gown" he was able to appreciate the honor but not the gown. To him it looked "like the trees." He came near having his name given to color blindness; but he did not quite measure up to the standard required, as he was blind only in one color. A green-blind admiral in the British Navy achieved great popularity at a Dublin function by appearing in green trousers which he supposed were brown. He attributed his social success to his personal charm. A red-blind boy failed as a strawberry picker because he could distinguish the berries only by their form; and he picked indiscriminately those which were green as well as those which were red. A green-and-red-blind architect designed a church with a green roof, copied a brown house in bluish-green, with the sky rose color, and the roses blue; while recognized as possessing original ideas, he succeeded best in monumental designs.

A member of parliament nearly caused a separation by appearing in gladsome red at the obsequies of his wife's mother. A man on trial for murder escaped conviction because a distinguished mathematician contradicted the testimony of a woman who declared she saw the defendant come from the victim's house wearing a red coat; it created a "reasonable doubt."

Enterospasm.—E. O. Ashe reports a case occurring in a strong, healthy woman, aged 22, who was found upon operation to have a narrowing of the small intestine for about seven inches of its length. There was no gradual tapering, but abrupt contractions at both ends of the narrowed segment, which, though firmly contracted, was to some extent pervious. This segment was covered with warm cloths while further search was made for other possible lesions. Nothing was found; but on removing the cloths the hitherto contracted part was found to have resumed its normal appearance and size. The bowel was returned to its cavity without further intervention, and the patient made a perfect recovery.

A Disgraceful Disaster.—Chicago has recently had simultaneously two epidemics, one of diphtheria, the other of scarlet fever. Our sympathy for her is considerably mitigated by reason that these contagious are distinctly preventable, and should be well under the control of modern sanitary science. It was rather whimsical to appeal to the populace to abandon "social gatherings" when at the same time it was declared unnecessary to restrict school, theatre and church attendance. General quarantine is now, however, out of date and discredited. The individual sufferer needs strict watching, and the cause, or rather the source of the contagion, must be found and dealt with.

The Association for the Blind, with its schools, its training shops, its workshops, its social clubs, its provisions for amusement, is day by day, and with constant progress, almost performing the miracle of making the blind to see; it is with great practical good judgment and efficiency promoting the education of the blind in the use of other senses than sight to do the work of the eyes and to attain the advantages and comforts usually due to sight, states our lay namesake. After ascertaining the actual number of the blind, the conditions in which they live, their needs, their opportunities and aptitudes, the association proceeded to extend the opportunities and to develop the normal faculties of the afflicted. Miss Helen Keller touchingly declares: "Opportunity is the torch of darkness." And with simple dignity, such as we should most heartily wish to see emulated by many among those who are possessed of all their five senses, she observes also: The blind "crave no charity, no pension, but the satisfaction that comes from lucrative toil, and this satisfaction is the right of every human being." Such satisfaction the association aims to provide so far as possible; and the possibility is really limited only by the means the association can command. It recently had placed in the ball-room of the Waldorf-Astoria Hotel an exhibition of the way in which blind workers can earn their living; there were those who showed their skill as typewriters, telephone operators, stenographers, chair caners, sewers by hand and machine, basket makers, and others.

The iodides are discussed by Burnet (*Lancet*, Sept. 8, '06), who finds that in angina pectoris, to be of any

real service, from 30 grains to a drachm must be given daily for months. In one of his cases the patient was given 5iss of iodipin in warm milk t. i. d. for monthly periods, with weekly intervals for a year; during this time there were no attacks, although previously they had occurred on an average every four or five months. Huchard does not hesitate to give from three to five drachms of potassium iodide daily; this heroic dosage seems fully justified by the results obtained. Arteriosclerosis, which is so often present in cases of angina, is not necessarily a source of heightened blood-pressure; the iodides act in such cases by stimulating the secretion of the thyroid and not by their depressant effect upon the circulation, declares Rolleston. Fraenkel finds the pathology of angina to be due to a sclerosis of the coronary vessels, the angina occurring in the course of syphilis, gout and aneurism being due to this. In other cases a spasm of the smaller vessels of the heart produces an angina upon which ensues the pain. This spasm, probably the source of every attack of true angina, is relieved by the use of iodides, Burnet preferring the sodium salts as less likely to disorder digestion. It would seem that the iodides really relieve angina by their specific anti-spasmodic action.

In chronic respiratory diseases Burnet finds himself able to rely upon only two or three drugs, of which potassium iodide is one, in his observations made upon pulmonary fibrosis as met with in stone-masons, he found the two drugs of most value to be this iodide and ichthyol. With these he was often able to alleviate the symptoms very materially indeed; the iodides were particularly effective against dyspnoea.

Ninety-five per cent. of pertussis cases are positively benefited in Kilmer's experience (*Archiv. of Pediat.*, Feb., '07) during the three years since he introduced his abdominal belt; this is especially so with regard to the cessation of vomiting. This fact is most valuable with regard to one of the most distressing maladies with which we have to deal. Kilmer's belt was first composed of a long strip of elastic webbing placed over a stockinette band; this, while efficacious, was warm to the child and expensive for the parents. Kilmer's new belt is made of linen with a strip of silk elastic webbing two inches wide inserted on either side. The belt laces in the back and is worn over the undershirt or band. The width of the belt for infants is from four to five inches, and for older children from five to eight inches. Its length should be such that when complete it will measure three inches less than the circumference of the abdomen at the naval. The degree of constriction should be determined in the individual case.

The Nervous System in Grippe.—W. Harris (*Practitioner*, Jan., '07) finds that next to diphtheria no acute disease affects the nervous system so severely as does influenza; nor has any other disease such varied nervous sequelae. On this account grippe may be mistaken for an invasion of Pfeiffer's bacillus. Pain in the occiput and at the back of the eyeballs, neuralgia, cramps, frontal headache and sudden syncope indicate grippe; tachycardia and dilatation may develop, as may also optic neuritis, retinitis, and even meningitis. There may occasionally be paralysis of one or more eye muscles, complete blindness, though temporary, myelitis, herpeszoster, multiple neuritis and numerous other complications.

Amentia and Dementia.—Bolton (*Jour. Ment. Sc.*) has studied six groups of cases: Idiocy and mentality; excited and moral cases; recurring cases which may be relapsing, or which may have become chronic; hysteria; epileptic insanity; and cases with systematized delusions (including paranoia). In dementia the average weight of the cerebral hemispheres is below the normal, especially in the frontal region. There is also more or less simplicity of convolitional pattern. Changes in gross are more obvious than in other lines of mental disease. In addition to lesions of the meninges and of the intracranial fluid, gross wasting of the cerebrum is visible, especially in the prefrontal region. Symptomatology, based upon these conditions, shows marked mental confusion, and this includes psychic phenomena due to lesions of the centers of association and to pathological conditions of the regions concerned in sensation and recognition and allied products of aberrant mental association, resulting in illusions and hallucinations. The sequelae of mental confusion are recovery, or stationary dementia, or, lastly, progressive dementia. Of the last there are three forms: Primary neurotic; progressive and secondary; and special varieties of dementia.

Shreds in the Urine.—De Santos Saxe (*N. Y. Med. Jour.*, March 2, '07) was led by the scanty references to shreds in most text-books to study these elements in many cases of chronic urethritis, postatitis and vesiculitis. He details in his important contribution the best methods of fixing and studying shreds. Those found in the urethra are either: pus shreds, mucopus, mucous and epithelial shreds, each having special macroscopic and microscopic characteristics. Several varieties of altered epithelia are found in urethral shreds. Those undergoing hyaline changes may be identified not only by the iodophile reaction, but by a peculiar degeneration as shown by their staining qualities with polychrome methylene blue. Shreds composed of pure epithelia consisting of flat pavement cells with small nuclei are shed spontaneously or after instrumentation, in the stage of the disease in which the superficial layers of the urethra become lined with these cells under the influence of subacute or submucous lesions. Shreds from the prostate and vesicle include several varieties recognizable under the microscope, but not the naked eyes. The "comma" shreds may be of two varieties of structure. The true comma shred of Fürbringer consists of hooklets of stratified epithelia, derived from the prostatic duct; a false variety is made up of bits of mucous shreds which roll up into a lump at one end. The frequency of gonococci in urethral shreds is directly as the proportion of pus cells, and inversely as the proportion of mucus and epithelia in the specimen; this rule does not apply to prostatovesicular shreds. The study of shreds is not of great value in the localization of the affection in the urethra, either anterior or posterior; it is most valuable in determining the stage of the process, the order of appearance being, with certain reservations, pus shreds, mucopus shreds, mucous and then epithelial shreds. The variety of urethral shreds present can have but a limited prognostic value. The fewer the shreds and the fewer the pus cells therein the better the prognosis; the larger the number of gonococci and of pus cells the worse the prognosis as a rule.

Marriage should certainly not be sanctioned, unless the terminal shreds contain no pus for months, even after provocative measures, such as the drinking of beer.

Serum Therapy in Grave's Disease.—The serum used by J. Rogers (*Long Id. Med. Jour.*, Jan., '07) is obtained by injecting pulpified thyroids obtained from operated cases of Grave's disease into rabbits. After a number of injections the rabbits are bled and the serum is separated and used for purposes of injection. Of 56 cases in which this method of treatment was used, 18 have been cured of every symptom, 21 have been improved, in 3 the method has failed and 4 have died. In men the cure seems to be peculiarly obstinate, inasmuch as only one case in four recovered completely. This rabbit serum is not dangerous; it may occasionally cause disagreeable symptoms, but never death. Rogers occasionally uses sheep serum, which is absolutely free from baneful effects.

Limitations in Surgical Treatment of Uterine Fibroids.—Coe (*Med. Rec.*, Feb. 23, '07) would not by any means operate in all cases. The tumor may be no larger than a small orange, such symptoms as pain, pressure or menorrhagia may be absent, and yet the surgeon is importuned to remove the entire uterus, even though the woman be in the prime of life. Surgeons have here been much too radical; the mere presence of a fibroid is not an indication for operation. Excluding cases of fibroids in which the indications—pain, pressure, profuse hemorrhage, steady increase in the size of the tumor, evidences of degeneration, complications (local and general)—would clearly point to the advisability of operation. Coe considers in his paper only small interstitial growths not affecting the general health and with few if any symptoms—cases which have caused the patient no disquietude until she has been indiscreetly informed of the presence of a "tumor." Here Coe is in favor of a higher type of practical gynecology, of a mutual confidence not only between the specialist and the general practitioner, but also between the doctor and his patient. Patients are oftentimes unwisely told that "the tumor would grow," that it would become malignant, that it would give trouble before or after the menopause; or the diagnosis of a real neoplasm had falsely been made. Oftentimes, instead of a tumor, simply a large hyperplastic or asymmetrical tumor will be found. The general practitioner should be sure of a tumor before he ventures an opinion; "once the fatal words had passed his lips all the specialists whom she consulted afterward could not convince her to the contrary." Coe has been for fifteen years watching patients with small fibroids who had never complained of any such disturbances as increased weight of the uterus, vesical or rectal irritation or interference with the normal functions of the pelvic organs. He does not commend, however, the ultra-conservatism which believes that a patient should be tided over the climacteric under the belief that the tumor would disappear after that time. He does not recall a case in which the fibroid had entirely disappeared after either a natural or artificial menopause, though he had seen it diminish in size and all troublesome symptoms vanish. The whole question turns on the proper recognition of the variety, the size and the symptoms caused by the tumor. It is a reproach to the profession to jump to the conclusion that surgical

interference is indicated simply because a tumor happens to be discovered.

Variations in Blood Pressure.—Hare (*Therap. Gaz.*, Feb., '07) wonders whether high tension may not be designed by nature to drive blood through narrowed vessels to distant parts for their proper nutrition. If we lower pressure by relaxation of the larger arterioles and arteries we starve proximal tissues. Again, in many cases of high tension the heart has undergone compensatory hypertrophy; and this increased power and the high tension help to feed the heart muscle itself through the coronary vessels and those of the besius. The normal heart is designed to beat against a pressure of 100 to 140 millimeters of mercury, and nothing exhausts a heart so rapidly as to beat excessively because of low pressure. Very often the hypertrophied heart of high tension may be considered to have established for itself a new standard of pressure (say of 130 to 170); and if we reduce this we may produce a state as abnormal as is a pressure below the true normal. In studying high pressure it is not sufficient to study the pressure alone; we must study the whole cardio-vascular apparatus. We must prevent an increase in tension; but we must not reduce tension simply because it is high, unless the heart cannot stand the stress or the pressure is so high and the vessels so fragile that rupture is threatened. Hare considers it unwise to prescribe drugs simply because of vascular tension, either high or low.

Erythema of the buttocks in children is generally due to contact with the urine and acid stools. Pehn (*Jour. Med. de Paris*, Dec., '06) finds it necessary first to deal with these evacuations. Alkaline mineral waters (Vichy or bicarbonate of soda) may be given with each meal; Pehn considers them superior to lime water. Intestinal antiseptics, such as naphthol, are also useful. Feeding must, of course, be supervised. Washing of the parts involved should not be too frequent; sterilized water with bicarbonate of soda (5ii.-Oj) should be used, or emollient infusions of marshmellow or elder. Sterilized talc alone, or combined with zinc oxide, is useful locally. Lime liniment with olive oil may be necessary if the erosion be very marked. Flexible collodion may be painted over the worst abrasions.

Neurasthenia and Adenoids, states Cassel (*Deut. Med. Woch.*, Sept., '06) are the most frequent causes of disturbed sleep in children. The details of the child's life should be most carefully regulated. The bedroom should be quiet and dark, except in cases of pavor nocturnus and somnambulism, when a light in the room is often of great service in producing quiet sleep. Hydrotherapy (the warm bath or the wet pack) may have to be tried. Hypnotics are to be avoided. (Adenoids must be removed, of course.)

The Protection of Infants and Young Children from Tuberculous Infection.—J. L. Morse (*Am. Jour. Med. S. C.*, Oct., '06) finds from autopsy observations that this disease is present in 30 per cent. of the cases under fifteen years of age. In the first three months of life it is found in only 4 per cent.; but this increases rapidly until, from the age of five onward it is present in 70 per cent. On the other hand the tuberculosis mortality diminishes with age, so that it is the cause of death in a smaller percentage of the cases in which it is found post mortem among older children than among in-

phants. In almost every autopsy in the first half-year of life it is the cause of death. Very little tendency to healing appears until the third or fourth year. Tuberculosis is almost never intra-uterine in origin, but an acquired and, therefore, a preventable disease. Prophylaxis should be of two kinds: to diminish the susceptibility to tuberculosis and to prevent infection. With regard to the former, we must guard against measles, influenza, pertussis and such diseases as are oftentimes followed by tuberculosis. Chronic tonsillitis and cervical adenitis must be treated. With regard to preventing the disease the now familiar methods must be pursued—education of the public, control of milk supply, isolation of advanced cases, etc. By the partial application of these methods the tuberculosis mortality in New York City children has been reduced 40 per cent. in the last ten years. By the way, the dirt beneath the nails of children under two contains tubercle bacilli in 14 per cent. of the cases.

Eighty-four Per Cent. of Consumption Cures.—At the new York State Hospital for Incipient Tuberculosis at Ray Brook, 96 out of 114 incipient cases are recorded as "apparently recovered" upon their discharge after a six months' residence. Forty-three patients had their disease arrested; but 13 showed no improvement. It is not at all difficult to obtain admission to this hospital. The law provides that every person desiring free treatment shall apply to the local authorities of his or her town, city, or county having charge of the relief of the poor, who shall thereupon issue a written request to the superintendent of said hospital for the admission and treatment of such patient. Such request shall state whether the person is able to pay for care and treatment. No person should be admitted as a patient in the State institution without the certificate of one of said examining physicians certifying that such applicant is suffering from incipient pulmonary tuberculosis.

The advantages of this institution should become much better known. We understand that its wards contain many empty beds.

Insanity, in Mr. Noll Humphreys' opinion (contrary to the usual belief) is not increasing at all. He finds the apparent increase due not to the growth of lunacy, but to the growth of the care of lunacy (*London Nation*); and he holds that it is not so much that there are more madmen, but that there are more mad doctors. This is an uncomplimentary and hardly a precise statement. Yet undoubtedly many men are now put in asylums who would in other times have been permitted to wander in the meadows or to play about the streets; many are now considered insane who in other times would have been thought merely wicked; possibly men now called madmen would in other times have been called saints. Mr. Humphreys questions whether this scientific harvest of all the lunatics alive is so great an improvement as it seems; and there are many who would agree with him. We have elsewhere noted that farm life seems much more preferable for the mildly insane than asylum life.

"Shorts" are said to be more harmful in hotel and railway existence than all other deleterious agencies combined. "Shorts" are related in no way to the stock market; they are short sheets, blankets, mattresses and bedsteads. When the victim, for instance, pulls the hotel bed cover over his shoulders he experiences cold feet; and vice versa. Mark Twain has long ago made

us acquainted with the sad lives which such sufferers lead; but the *Medical Brief* has recently taken up the matter from the professional point of view. So that we may hope for remedied conditions. It seems now that only short commercial travelers can follow that hard calling with comfort. It is wisely suggested that hotel proprietors who treat their guests well in these respects should advertise the fact; it would certainly pay them to do so.

Rodent ulcer is treated by Jones by means of an ordinary portable battery. The process is based on the principle of the introduction of zinc ions into the ulcerous tissues by means of a continuous current. The ulcer is made to assume the appearance of an ordinary simple sore, and in many instances it is, so Jones declares, healed in a few weeks after a single application. The requisites are: a continuous current battery, a galvanometer, a pair of wires, a flat pad for completing the circuit at the negative pole, and a rod or other electrode of zinc. The zinc must be covered with three or four layers of lint, which serve as a reservoir to hold the zinc solution—a 2 per cent. solution (distilled water) of the sulphate being about right. The zinc should be freshly cleansed or amalgamated. One should not touch this covered zinc electrode unnecessarily, because every touch imparts a trace of sodium chloride from the skin and tends to reduce a little the efficiency of the process by bringing in some foreign ions. The circuit is completed through the usual pad electrode applied to any convenient part; the zinc electrode, of suitable size, is held on the rodent ulcer and 5, 8 or 10 milliamperes, according to the size of the electrode used, are slowly turned on.

Suppressed Gout.—G. Rankin (*The Practitioner*) believes that the exciting cause is a toxemia probably originating in the upper part of the alimentary tract. The following are symptoms: Gastric disturbance, excessive or irregular diet, a record of gouty antecedents; more or less pronounced and permanent plus tension in the arteries. In two cases of Rankin's, neither had ever suffered from true gout. But both had gouty antecedents, were beyond the prime of life, and had undergone more than the average amount of work and worry. Gastric disturbance was the first symptom. Vascular tension, arterial degeneration and threatened cardiac failure led in the order stated to the brink of angina pectoris and Bright's disease. Neither patient would believe the malady to be gouty. There are other effects mentioned by Rankin aside from those relating to the vascular system. Pancreatitis is sometimes not possibly a direct consequence of irregular gout. With regard to treatment any form of tender meat is wholesome, but it should be taken sparingly. Vegetables, excepting rhubarb, may all be taken if thoroughly cooked. Sugar need not be forbidden when there is no glycosuria; nor fruit, either ripe or cooked. But spices, rich sauces and pickles should be avoided; salt should be limited in amount. Constipation must be guarded against.

The Pathology of Paralysis Agitans.—C. D. Camp (*J. A. M. A.*, April 13, '07) reports fourteen cases in eight of which he studied the peripheral nerves and muscles; and in two the ductless glands also. The most constant lesion in the nerve centres was a fibrosis of the capillary blood vessels of the spinal cord which caused them to appear more numerous by rendering them prominent. The posterior and lateral columns seemed most

involved. There was in no case degeneration of nerve fibres of the cord, and in only two cases was this observed in the peripheral nerves with the meigert hematoxylin stain; in two others there was a swelling of the myelin sheaths, with (in one case) swelling of the axis cylinders. The Betz cells in the paracentral lobule were much pigmented; but in only two cases were degenerated cases observed. Camp discusses the various theories concerning paralysis agitans; he thinks that many of the conditions found, to which the disease has been attributed, are only coincident senile changes. With regard to the muscle theories: in all of nine cases he found pathological changes. The fibres were swollen, bound in cross section instead of polygonal, their nuclei were multiplied, etc. These findings agree in the main with those of many others; and he is inclined to believe that there is a specific change in the muscles in paralysis agitans, although this is hardly as yet definitely proven. Camp believes a toxemia, which is connected with disordered parathyroid function, to be the essential cause of the disease (and here he is in accord with Berkeley, who has done much original work on the subject). In the two cases in which he examined the ductless glands he found the parathyroids in a condition of fatty degeneration, especially in relation to the blood vessels. Camp concludes that paralysis agitans is not a neurosis, nor is it senility; the anatomic basis of the disease—muscular rigidity, tremor and the symptoms dependent upon them—lie in the affection of the muscles; the disease is probably a general toxemia and there is evidence that it is due to alteration in the secretion of the parathyroid glands.

Buttermilk Feeding.—H. C. Carpenter (*J. A. M. A.*, May 11, '07) has fed twelve infants in this manner. They varied in age from one to fifteen months. The average gain was eight ounces a week. This increase in weight is of special interest because every one of these cases was seriously ill at the time they were put upon the buttermilk. Five were treated in an infant asylum; and their average gain was seven and one-half ounces a week. This buttermilk is of especial advantage among the poor and in dispensary practice, costing, as it does, about five cents a quart. When fresh it is a most excellent temporary food for infants suffering from intestinal indigestion, enteritis and marasmus. There seem to be no unpleasant effects; infants almost invariably take it well. A few, when first put on buttermilk, vomited slightly; but this ceased in a day or two, with only one exception. Carpenter believes that whatever success has attended the use of buttermilk is due not so much to the absence of fat as to the great ease with which the proteid of buttermilk is digested. Several of his little patients who could not digest 0.75 per cent. of calcium casein digested perfectly the 2 to 3 per cent. of casein lactate in the buttermilk.

Suicide Among Barbarous Peoples.—Mr. Arthur G. Leonard, in his book, "The Lower Niger and Its Tribes," states the Bulletin of the American Geographical Society, found that there were many cases of suicide in the Brass district of the Lower Niger. One of the commonest methods is to hold the breath, which is done so determinedly as invariably to result fatally. This form of self murder seems to be the result of mental derangement, due to the impression

that the person is afflicted by malign influences. There are other methods of suicide. A canoe builder having for some reason been exiled from Brass was always unhappy because of his exile, and shot himself. He was, however, saved by able medical treatment. He declared that as he could not get back to his people he had no wish to live; moreover, the tree spirits living in the bush where he made his canoes were hostile to him. A laborer, simply because his wife had upbraided him in the morning, promptly drank two bottles of gin and then hanged himself from a beam. (The hanging would seem to have been superfluous to the consummation of this suicide.) These simple people are phenomenally sensitive and impulsive. For example, a young slave of one of the big chiefs quietly retired into the bush and killed himself because he had been accused of theft.

Fifteen Medical Societies in One Congress.—In May last the Congress of American Physicians and Surgeons held its seventh triennial session in Washington. Its constituent societies have a total membership of about 1,800, or about 1-2 per cent. of the total number of physicians and surgeons in the country. Meetings of the constituent groups are held annually; but there is a triennial congress of all the fifteen groups. The recent meeting brought together some twelve hundred men eminent and exceptionally skilled in their various specialties; several hundred other physicians—non-members—came to listen "from the East and from the West, from the Southeast and the Southwest, from England and from Europe," as one enthusiastic visitor declared. It has been well stated that "the value of these meetings to the members of the congress and the benefit which comes almost directly to the sick and halt and maimed, appear largely in the fact that the gathering are a kind of clearing-house for new ideas in medicine and surgery. The result of a dose or of an operation may be reported in a formal and technical article in a magazine or in the form of a paper read before the congress. These are of value to the practitioner, but there is a vastly greater value in the personal discussion and confidence which is possible at these meetings. The doctor of sixty, with his wide experience, meets the man of thirty-five who is hewing out a new course. The man who is counted wise to-day meets the man who will be counted wise ten years hence, and both are gainers by the personal contact and the exchange of views."

Berthelot, who died recently Paris, did not serve the State only as a chemist, declares the London Times. He was at various times Minister of Foreign Affairs and also Minister of Public Instruction. This man of genius gave his mind to solving the difficult problem of the training of a democracy. Nevertheless, he was happiest, and most himself, in the laboratory, both at the College de France and at Bellevue. The manner of his death was most affecting. When his venerable wife fell ill he declared to his son that he should not survive her. Several days after he found her dying, and when the breath had left her he cried "J'etouffe," and flung himself on a couch in the neighboring room. There an instant later his children found him dead. The same grave receives him and her beneath the dome of the Pantheon.

MISCELLANY

In the East End of London, it is said, doctors will visit and provide medicine for a shilling; others give advice and medicine at a dispensary for sixpence. Contract work is even worse paid. It seems that tens of thousands of families in Great Britain, by the contract system which prevails in manufacturing districts, receive medical attendance and advice for threepence a week. Even medicine and dressings are provided.

Vaccination has again been upheld by a recent Massachusetts decision in a case brought by plaintiffs to test the legality of excluding a minor from the public schools because of failure to comply with the school committee's regulations. After passing through several courts the Supreme Judicial Court of the State decided for the defendant, that the minor must be vaccinated before being permitted to attend school.

Conscience compelled a patient of Dr. Champlin, a physician practicing in Bloomburg, Pa., to pay a debt for services contracted sixteen years ago. The patient stated that he had recently become converted to religion, and that he had also amassed a considerable fortune and was now able to pay off his old debts. A general religious revival among prosperous citizens who had in former years "hung up" their physicians would certainly be welcome.

Fracture of the Skull.—Many deaths from hemorrhage upon or within the brain result yearly from fractures of the skull which have passed unobserved at the time of the accident (C. F. Berber, *Brooklyn Med. Jour.*). In many of these cases the individual has been alcoholic at the time of receiving the injury. The general symptoms are then apt to be so profound that unless specially trained and experienced the physician will be unable properly to make the diagnosis.

Is it presumption, asks Dr. G. W. Gay, of Boston, for the physician to ask hospital trustees to protect the attending "from wasting his strength, time and skill, his capital in life, on those who have no right to them? And, furthermore, to ask them to show due consideration to the family physician by refusing to allow well-to-do people to obtain free treatment at the institutions under their charge?" It is very presumptuous indeed, if we are to judge by the attitude of most hospital trustees.

Prof. Mosetig-Moorhof, the Viennese surgeon who introduced iodoform into practice, while walking on the bank of the Danube fell into the water and was drowned. His submersion was due to the fact that he had been subject to fainting fits, having had arteriosclerosis; feeling faint, he leaned over the bank to bathe his face and lost his balance. He was the originator of the method for treating caries by injection of iodoform and petroleum, by which the necessity for many amputations has been obviated.

Round 'Em Up, by All Means.—The Common Council of Fort Dodge, Ia. (they are so enterprising, those Western cities), has decreed that all able-bodied unmarried persons between 25 and 45, whose mental and physical propensities and abilities are normal, shall be required to marry within sixty days, on pain of a fine of not less than \$10 nor more than \$100, according to the degree of criminal negligence manifested. We in the East are much too lenient in these matters; will the New England rural press please copy.

Anesthetize patients on the operating table is Gwathmey's advice; he considers that the lifting and jolting otherwise necessary is thus avoided, and advises that every operating table should be fitted with wheels, thus making it possible to anesthetize the patient in an adjoining room. This should certainly obtain in hospitals. But when operating in the patient's home, the sight of the instruments and of the preparations made should as certainly be spared him. His fright is thus added to; and fright is a great factor in shock, and may be responsible for fatality during or after operation.

New York City's Hospitals Are Full.—The Commissioner of our Charities Department reports an overcrowded condition of the various hospitals and institutions under his care. During the month just past he has acted on construction bids to cost \$2,000,000. The Sea View Hospital for the tuberculosis on Staten Island has been halted by an injunction obtained by real estate dealers and owners who claim that the institution is for contagious disease and should be under the management of the Health Department. Here is a difficult problem for the city which has many thousands of helpless sick to care for, the ranks of whom are constantly being increased.

Philanthropy with four per cent.—This excellent motto has been beneficently realized in the movement to improve the dwellings of the poor of New York City, which was started a few years ago; four large groups of houses having been erected, accommodating some two thousand families. It is reported that in 1906 there were in these houses 104 births and 17 deaths. In one group there were 400 children, with only three deaths in the twelve-month; in another group there were no deaths. In addition to the improved condition of the people, these modern and model tenements have yielded a return of 4 per cent. on the money invested, although the enterprise was not intended as a money-making venture.

Mens Sana in Corpore Sano.—J. Fraunfelder (*Ohio State Journal of Medicine*) seems to have made an important discovery—that the development of the mind is largely dependent on the efficiency of the body. If we mistake not, however, Hippocrates seems here to have antedated our esteemed Ohioan colleague by several centuries at least. Fraunfelder makes another observation which is of great moment and, seriously, is not nearly enough appreciated—that the expansion of the moral element so well expressed by the word "character," is similarly intertwined in such close relationship that neglect of a part is derangement of the whole.

The condition of New York streets during the past winter has really been a matter of grave concern. Immense quantities of snow were not removed for many days; and as the snow-piles were gradually reduced by the sun they became black and more grimy, indicating accumulations of dirt and garbage very deleterious to health. There has been a noticeable increase in pneumonia cases over last year; but the increase in tonsillitis, grippe, "colds" and like affections of an infectious character has been very marked. In one downtown office three-fourths of the employees were at one time down with tonsillitis. The greatest danger to the community supervened when all this infective refuse was churned into dust and blown in clouds among the crowds in the street. Unquestionably every epidemic disease is likely to be increased by the unsanitary condition of the streets.

THE INFLUENCE OF THE RENAL BLOOD SUPPLY ON THE POSITION OF THE RENAL HILUM.

BY BYRON ROBINSON, M.D., CHICAGO.

FOR some time I have been making observations in autopsies on kidney rotation. This paper will contain some of the views acquired, as well as illustrations of specimens. Unfortunately the descriptions and illustrations of the blood vessels of fused (horse-shoe) kidney and other anomalies are frequently defective, as well as numerous specimens. The blood vessels of anomalous kidney are variable in number, volume, and uncertain in location. The length of renal vessels present considerable variation. There is a tendency for single branches, from the aorta or renal trunk, to course to the renal parenchyma through the renal hilum adjacent to the ureteral pelvis. The vessels in fused kidney tend to preserve the original segmental multiple type. The veins and arteries generally retain their relative number and position. With descent or distalward movement of the kidney, there is apt to arise a renal vessel from the iliacs which is more especially true in solitary kidney. The veins may not accompany the fused renal arteries. The renal vessels from distalward movement of the fused (horse-shoe) kidney generally course distalward. The renal veins and arteries may cross each other at acute and right angles. The vessels of horse-shoe kidney are generally shorter or longer than normal ones. In two cases only (in 50 subjects) in horse-shoe kidney did a single renal arterial trunk divide and supply the bilateral ureteral pelvis. This would be an important factor in surgical intervention, as the ligation of the trunk of the renal vessels would affect both lateral masses of renal parenchyma. In a case of *renes arcuati* there were two separate renal arteries on each side with separate origin from the aorta. There was one vein on the right and three veins on the left with separate origins from the vena cava; however, a single coalesced ureteral pelvis for the entire kidney existed with two ureters. In a case of horse-shoe kidney (Fig. 6) there are three renal arteries with three separate origins from the aorta on the right. One vein only exists on the right. The vessels of the same side may cross each other to gain their destination. A normal kidney possesses multiple vessels in about 20 per cent. of subjects. This anatomic fact places the surgeon continually on guard. However, in the horse-shoe kidney the vessels are uncertain in number, length and location, yet voluminous; hence in renal surgical intervention the operator must determine the number and location of renal vessels in each individual case, and also whether the renal bridge or isthmus renals joining the bilateral renal mass lies ventral or dorsal to the aorta and vena cava or at the proximal or distal renal end. The operator must determine previous to ligation whether any single renal arterial trunk divides to supply bilateral parenchymatous masses.

HILUS RENALIS.

The hilus renalis is the gateway through which the ureter and the normal blood supply enter the kidney. The renal hilum may exist or not in horse-shoe kidney, however, it generally is defective in contour, orifice, location and dimension, as well as normal relations. The hilus renalis is important in fused (horse-

shoe) and other kidney, as the vessels generally pass to the kidney through it. The hilus renalis is generally located on the ventral surface of the horse-shoe kidney, or it may be located on the dorsal surface. Perhaps 20 per cent. may be doubtful from defective data. In many horse-shoe kidneys no hilus renalis can be admitted to exist.

SINUS RENALIS.

The sinus renalis is the excavation or depression in the kidney which receives the ureter (pelves) and the vessels where the vessels and ureters, are admitted are imbedded in adipose tissue. The sinus renalis in horse-shoe kidney is a constant anatomic structure, as the kidney must be penetrated by the ureter at some point, however, it generally is defective in form, location, and dimension. The sinus renal may be a diminutive depression as Figures 1 (II), 2, 3, 11, 13, or the sinus may represent a broad flat surface as in Figures 4, 5, 6, 7, 8, 9. The location of the sinus renalis corresponds practically with the hilus renalis to which data reference may be made. The anomaly of ventralward situation of the renal hilum is the result of a large blood volume to the dorsal renal labium with also perhaps a factor of renal arrest of development. In others words, the hilus renalis moves dorsalward or ventralward according to the volume of blood to either renal labium. If the dorsal renal labium receives an excessive volume of blood the kidney will rotate ventralward and lateralward, and the renal hilum will present accordingly ventralward and lateralward.

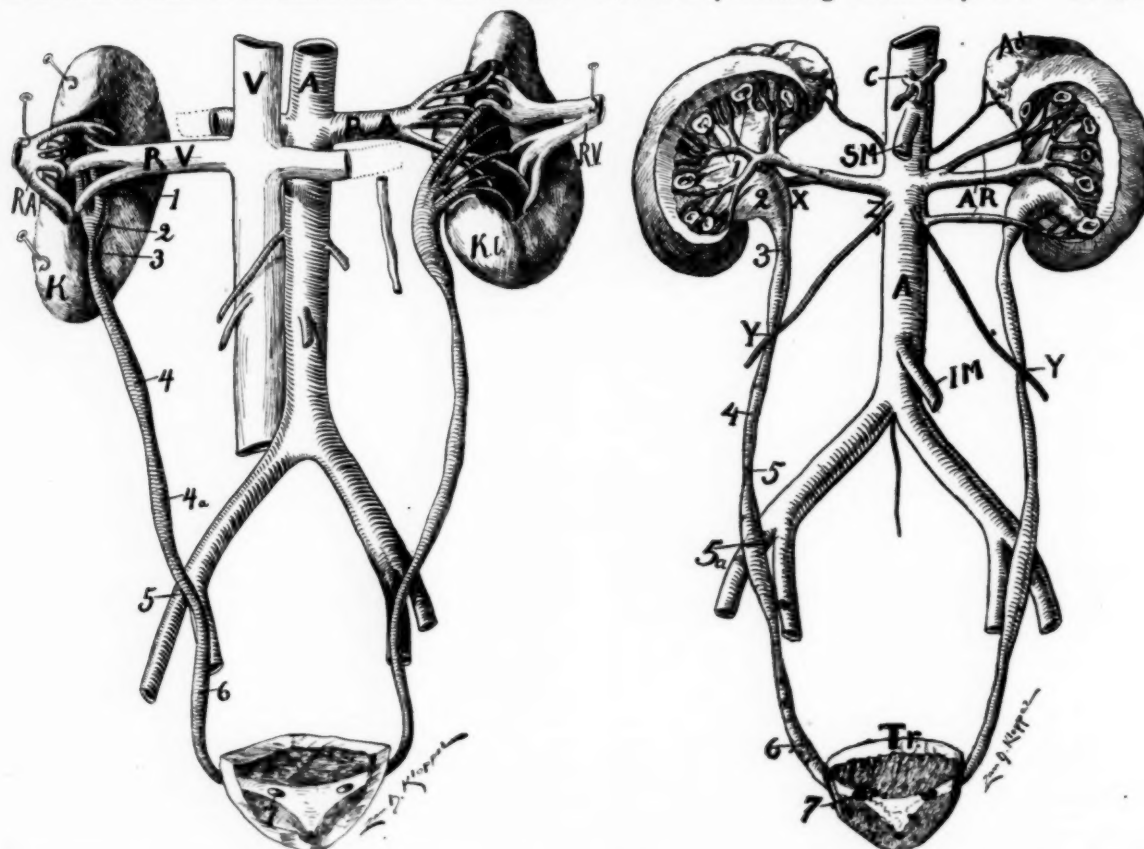
MULTIPLE RENAL ARTERIES.

Abnormalities of the renal arterial supply—in position, dimension, number—is perhaps more frequent than any other arterial trunk. The common vascular anomaly is the addition of an arterial vessel. The presence of multiple renal arteries is due to arrest of renal development. It is a reversion to ancient types which possessed multiple renal arteries. The kidney is a segmental organ with no doubt segmental blood supply. Multiple renal arteries represent primordial physical conditions. Multiple renal arteries are mainly located distal to the normal renal trunk. Multiple renal arteries originate primarily from the aorta and secondarily from the iliac (common, internal or external). Other accessory renal arteries may arise from the lumbar, middle sacral, hepatic or colic. In all subjects in which the hilus renalis is abnormally situated the blood vessels are irregularly distributed, hence there is a distinct relation between the renal hilum and the renal blood vessels. The degree of volume of the renal artery supplying the renal labia is responsible for renal rotation or the position of the hilus renalis.

The suprarenal, renal and spermatic or ovarian arteries are no doubt a remnant of multiple, paired, segmental visceral arteries, and finally become reduced to single arteries to the suprarenal, renal and spermatic or ovarian, as at present. Multiple renal arteries disappear by fusion, coalescence, however, at present man's single renal artery divides into multiple terminal branches—which serve a similar purpose as multiple renal arteries. If the ventral renal labium receives an excessive volume of blood, the kidneys will rotate dorsalward and externally lateralward, and the

renal hilum will present dorsalward or lateralward. The greater the number of renal arteries (arterial volume) situated ventral to the renal hilum (i. e., supplying the ventral renal labium) the more marked is the rotation of the renal hilum dorsalward and externally laterward and vice versa. The hilus renalis is subject to extensive variation in the contour of its orifice in the volume of its labia, and in its location. Normally the ventral renal labium extends more medianward than the dorsal renal labium, because the renal arterial supply is greater to the ventral renal labium; however, the reverse may occur. Also, the two renal labia may be equally developed, presenting a uniform contour of the hilum orifice. In the renal

mainly at the distal end and its proximalward movement and development is checked. The fused kidney is located more medianward and distalward than usual. The distal renal ends of some birds and fishes are coalesced, blended. Practically, renal arteries control the position of the hilus renalis. The position of the renal hilum depends on the degree of blood volume to the dorsal or ventral renal labium. Originally, embryonically, the renal hium is located on the ventral renal surface. With growth, development and the greater blood supply to the ventral renal labium the renal hilus is finally in the adults normally located on the median renal surface. The renal rotation is doubtless enhanced by moulding of the body walls. Corrosion



hilum types the corresponding vessels present a similar variation. If the dorsal and ventral renal labia be supplied with normal (or equal volumes) of blood, renal rotation may not occur. The corporeal parietes and contained adjacent viscera may mold the kidney, but it is the influence of vascularity that is the chief element in renal rotation. In general there is the one dorsal renal arterial branch and the two ventral renal arterial branches. And it appears that the development of the dorsal or ventral renal labium corresponds to the volume of blood supply.

The most common form of renal fusion is the horse-shoe kidney, and this is generally accompanied by multiple renal arteries originating from the aorta and iliacs. In the horse-shoe kidney the fusion occurs

anatomy demonstrates that the dorsal renal vascular blade is considerably less in dimensions than the ventral renal vascular blade, and that the elective line of cortical renal incision with minimum hemorrhage is 1-2 inch dorsal to the middle of the lateral longitudinal renal border. This fact (blood supply) explains the greater dimension of the ventral renal labium. Multiple renal arteries are important: (a) whether all pass through the hilus renalis; (b) whether they pass external to the hilus renalis ring and penetrate the renal parenchyma; (c) whether the accessory artery be of marked dimension, supplying exclusively the dorsal or ventral labium and influencing renal rotation by renal hypertrophy; (d) the allusory renal artery is important in surgical procedure; (d) multiple renal arteries are in general a

mark of arrested renal development; (e) in multiple renal arteries the kidney is frequently located abnormally distalward; (f) the normal renal form be distorted; (g) the kidney may retain lobulation; (h) in multiple renal arteries the hilus renalis may be located on the ventral, dorsal or lateral renal surface; (i) the ureter may be less in length than usual; (j) multiple renal arteries accompany fused kidney.

The kidneys are primarily situated distal to the aortic bifurcation (in the pelvis), and as the developing kidneys pass proximalward they diverge laterally so that normally in the adult they are widely separated. If the proximalward movement of the kidneys be arrested they will be supplied by arteries from the distal abdominal aorta and iliaes.

RESUME AS REGARDS MULTIPLE OR ABNORMALLY DISTRIBUTED RENAL ARTERIES.

1. Twenty-five per cent. of subjects possess multiple or abnormally distributed renal arteries.

2. Multiple or abnormally distributed renal arteries may or may not pass to the kidney through the hilus renalis. Some penetrate the surface of the renal parenchyma external to the renal hilum, with no visible change in the renal surface except the puncture of the renal vessel.

3. If an excessive volume of blood pass to the dorsal or ventral renal labium the corresponding renal labium will become hypertrophied and rotated.

4. Practically the renal blood vessels control the position of the hilus renalis as it depends on the degree of blood that one renal labium receive in excess of the other.

5. Multiple renal arteries are intimately associated with lobulated, rotated, malformed dislocated (distally located) and fused kidney—suggesting arrest of development.

6. The chief accessory or multiple renal arteries are most frequently located distal to the normal renal artery.

7. Multiple arteries are frequently associated with ureteral duplicity, dislocation, abnormal pelvis (form, location, dimension, number). Abnormal calyces (number, form, location, dimension) and calicular pedicles (number, form, length, location, diameter)—suggesting an arrest of development.

8. Normal human anatomy is a matter of averages and the practicing physician should consider abnormalities in the renal apparatus of: position, multiplicity, distorted anatomy, unpaired conditions.

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Prof. August Bier, who has introduced the employment of active and passive hyperemia to arrest purulent and inflammatory processes, has been appointed to fill the chair of the late Ernst von Bergmann in Berlin. The importance of the "Bier method" was at first greatly exaggerated; nevertheless, we now believe it to be a substantial contribution to medical science. Spinal anesthesia is another of Bier's innovations.

THE PROBLEMS OF THE MENOPAUSE.

BY WALTER BERGER, M.D.

GYNAECOLOGY is the youngest branch of medical science for it began in 1816, with Recamier and the better means of diagnosis that he introduced; the time that has elapsed since then may be divided into two periods; the first extends from Recamier to Simpson; the second extends to the present. The galaxy of Paris physicians following the lead of Recamier had, for their object, to bring the sexual organs of women within range of the general laws of pathology. Velpeau had taught the frequency and importance of uterine malformations and displacements, but inflammation was accepted as explaining most uterine diseases, and the therapeutical tendencies of this epoch were essentially medical, without the aid of surgery. With Simpson began the more exclusive surgical tendencies that are still in the ascendant in England and America; he started the treatment of uterine displacements and flexions by pessaries, intra and extra-uterine and while mature pathologists still hope to find a pessary that support and rectify the womb without damaging it, every young gynecologist has a pet pessary of his own. Simpson devised the slitting of the womb for the cure of sterility, but when transplanted into America, his operation, in the hands of Dr. Marion Sims, became one for the cure of many diseases of women.

The climacteric, or so-called "change of life" in woman, presents, unquestionably, one of the most interesting subjects offered to the physician in the practice of his profession, for the phenomena of this period are so various and changeable that he must certainly have had a wide experience who has observed and learned to estimate them all. By the "change of life" we understand that phase in the life of a woman during which her sexual activity ceases. To determine the time at which this period begins and ends we usually rely upon the most striking sign, the sudden or more gradual cessation of menstruation; in a given case we believe that a woman has entered upon the climacteric when, after reaching a comparatively advanced age, her previously regular periods begin to be irregular, and she has "reached the climacteric" as long as these irregularities continue, and we infer that she has "passed the change of life" when menstruation ceases permanently.

The terms "Climacteria" in Latin, "Climacteric disease," "Change of life," "Critical time," "Turn of life," in English, "Temps critique," "Age de retour," "Menopause," in French, and "Aufhören der Weiblichen Reinigung," in German, are then understood to mean a certain period of time, beginning with those irregularities which precede the last appearance of the menstrual flow, and ending with the resettlement of health. Variable as is the duration of this time in different women, it receives a certain degree of precision from the date of the last menstrual flow, which divides the change of life into two periods. There is no medical term to designate the time included between the first indications of the failure of ovarian energy and cessation; women call it "the dodging time," but in the course of this article I shall often use the words "the change," to indicate the pre-cessation part of the change of life, in contradistinction to the post-cessation period, which begins at cessation, and concludes with

the permanent restoration of health. Although the importance of this epoch has been denied by Tissot, Dewees, Meissner, Saucerotte, and Landouzy, their opinion is not held by the profession, as is evident from the writings of Fothergill, Sir C. M. Clarke, Meigs and Bedford. The last author has truly stated that, "in addition to structural and malignant disorders so frequent at this period, there are many forms of eccentric nervous disturbance, various forms of temporary or permanent paralysis, and varieties of simple nervous irritation, involving no peculiar lesion, but numerous beyond calculation." Lisfranc completely adopted the popular belief in the dangers of the change of life; and Moreau de la Sarthe says that "the change of life is characterized by headaches, syncope, leipothymia, general or partial spasmodic affections, hypochondriasis, various symptoms of hysteria and of insanity." Some admit with Voisin, the frequency and singularity of nervous affections at the change of life, but deny that they are caused by the monthly retention of a few ounces of blood; whereas it is only contended that the cessation of the menstrual flow and the attendant or subsequent occurrences, physiological or morbid, are induced by structural changes progressing in the ovaries, and by their various reactions on the system. Another objection is founded on an erroneous interpretation of statistics, thus Benoiston de Chateaufneuf and Odier de Geneve have shown that, if a large number of women between the age of forty and fifty be compared with a similar number of men at the same periods of life, the rate of mortality will be greater among the males than the females. Those who argue from these results might as well say that parturition has no influence on the health of women because it has little on their mortality; and, moreover, Finlayson has shown that at all periods of life more men die than women. Those who deny that the change of life is a critical period, argue as if critical meant "fatal," while in medical language, crisis means a gradual change leading to some decisive action for better or worse; to recovery more frequently than to death. Instead of flowing on in smooth tranquillity from the cradle to the grave, the stream of life is marked by rapids, which have been called critical, metamorphic, or developmental epochs, and during which an unusual predominance is acquired by one or by several of the organs which together form the human body. The object of each successive critical readjustment of our frame is to ensure the greatest possible amount of health for each period of life.

With reference to the particular age at which the change usually occurs, numerous statistics have been elaborated with commendable industry, but undoubtedly the change occurs later in Northern people than in those of the South. In our regions the average age is between forty-five and fifty. Beyond this we need not go. Borne states that Queirel and Pouvier found that in the vicinity of Marseilles the average age at which menstruation ceases is forty-five years and eleven and one-half months. Goth states that among the seven different tribes of Transylvania the time at which the menopause occurs varies from thirty-nine to fifty-one years; on the other hand, Rodsewitsch reports that at St. Petersburg the average time is forty-eight years and eight and three-quarter months, while in Moscow

(on the authority of Bensenger) it falls between forty-three and forty-eight.

Of course isolated cases occur everywhere in which the menopause is delayed until much later than the average time in the given region. In looking through the literature we observe every possible variation, thus Brierre de Boismont observed two cases and Courty one, in which menstruation ceased at twenty-one, while Hegar calls a case (mentioned in Battey's "Normal Ovariectomy") in which the periods continued to recur until the extreme age of ninety-three, the woman enjoying good health, while Blancard and Langland report cases of persistent menstruation in women one hundred and six years of age. But, aside from such remarkably exceptional cases, we cannot insist too strongly upon the necessity of the attending physician ascertaining the cause of the slightest deviations from the normal in this direction; still, hereditary peculiarities, or unknown disturbing influences, are sometimes to be held responsible for the premature or delayed appearance of the menopause, yet we can sometimes find no possible explanation, and must be content with accepting it as so-called "freak of Nature," but the accurate observer will generally reduce such cases to a minimum, and the variations hitherto recorded will be shown to be comparatively few. In the larger number of abnormal cases it will be found that some pathological process was the cause; so make it a rule from the outset to search for such a process in every case of this kind. To digress slightly, Scanzoni, whose opportunities for clinical observation were so great, mentions a woman aged fifty-three, as the oldest whose hemorrhages he was "inclined" to regard as really of a menstrual character; in every instance above this limit he was able to find, either in the living subject or after death, some pathological factor accounting for the hemorrhage.

There are factors which hurry the menopause, such as excessive sexual activity, especially numerous and rapidly succeeding pregnancies, leading to "premature marasmus of the woman;" the sexual function is generally abolished earlier "in the laboring class, who are compelled to work hard and have many cares," thus Krieger decides, from observations of Mayer's with regard to social status, that in women of the lower ranks the menopause occurs earlier than in the well-to-do and rich. As regards the time at which menstruation begins, it has been shown by Krieger, Kirch and others, that the earlier the menses appear, the later they cease, and vice versa; however, when the first period is unusually early or late, the change of life comes very early. Some, as Tilt, think differently, while others, as Queirel and Rouvier affirm that the time of appearance of the menses has no marked influence on the time of the menopause, so it is often difficult to establish the above mentioned causal relation between the time of establishment and the cessation of the menses, because the exceptions are so numerous, and the causes of the variation in this or that direction in individual cases play such an important part. But we can depend upon a certain law, viz., that there is a certain limit to the sexual activity of the normal female; other things being equal, it is self-evident that in the perfectly healthy woman this "normal time" for the beginning of menstruation corresponds with the "normal time" for the cessation of

sexual activity. If we describe the former as "early" which we are justified in doing, considering the relatively late beginning of menstruation in many abnormal cases, and the latter as "late" (in comparison with the premature development of the menopause in many abnormal cases) it certainly follows that there is some connection between the early appearance and the late disappearance of the periods. Since this law depends more or less exclusively upon the normal condition of the organism, deviations from the same must be related to abnormalities of the organism, and here as in all other cases, the rules can hardly be established by the exceptions. Kisch's very interesting explanation of the greater sexual "vitality" which prevails in certain women, in his opinion, lies at the bottom of the relation above mentioned, especially when abnormal conditions exist. This "increased vitality" may consist to some extent in an increase of the usual normal condition, and may really approach the abnormal. The author himself gives us some reason to think thus by confining this peculiarly to "certain women."

As regards the manner in which menstruation ceases, every possible variation has been observed; the time of its appearance is delayed; the intervals become longer (six weeks to several months) or shorter (fourteen days). The flow continues longer, often during the entire intermenstrual period; there is seldom a diminution in the amount. Continuous and slight losses of blood often alternate, while the quantity is often much larger than usual, and may amount to a perfect out-gush; and between the periods we again observe for some time insignificant hemorrhages. The amount of blood lost during the entire time of the climacteric is rarely less than during the early normal periods, and the blood itself is often watery, or darker than usual, and is frequently mixed with a quantity of mucus. Less often the periods ceased suddenly, the patient suffering more or less, or the menstrual flow may gradually decrease, becoming less and less, until it finally ceases entirely. For example, a woman began to be irregular at forty-three, and continued so till she was forty-five, the menses at first recurring every three weeks, then every four, five, six weeks, then every three months, then every six, and finally they disappeared. The hemorrhage each time was less than it was at the preceding period. After the cessation there was moderate leucorrhœa and sweating, which continued for some time longer.

At all critical epochs the activity of some important apparatus may be too powerful, and disturb the functions of its allied organs, as the reproductive organs do the nervous system to produce hysteria, or it may be too feeble to react with sufficient energy on the system, and there will ensue chlorosis. Whether the energy of the preponderance-seeking organ be above or below par, health may be impaired, for the system may not react well against stimuli, whether physical or emotional. With regard to the pathogenic influence of the critical periods of life, first and second dentition seem to influence both sexes in the same way. Puberty is common to both, but the impulse then given to the constitution of man by the sexual apparatus is, in general, fully effective and all-sufficient to ensure its permanent activity until extreme old age; whereas in woman, this crisis is very liable to be delayed or perverted, and

even when puberty has been effectually established, the health of woman is dependent on those oscillations of vital power which render menstruation healthy or morbid. Matrimony, pregnancy, parturition, lactation, are like critical periods, curing some complaints, giving greater activity to others; and when, after having lasted thirty-two years, the action of the reproductive organs is being withdrawn from the system, there arise a series of beautifully adjusted critical movements, the object of which is to endow a healthy woman with a greater degree of strength than she had previously enjoyed; but if the seeds of destruction have been slumbering for years within her, the change of life will give them increased activity. Thus Dionis, of old, and Madame Boivin, Dupuytren, Tanchou in our time, have shown that the greatest proportion of cancerous affections, and polypi of the womb are complained of at that period, and, according to Valpeau, it is the same with cancer of the breast, as well as with adenoid and neuro-matic tumors of the breast. If the term critical be taken in a more restricted sense, as indicating a period in which the system find relief by critical discharges, what time of life is so rife with critical phenomena? The floodings, leucorrhœa, diarrhœa and perspirations are eminently critical.

As regards the physiology of the menopause it is well to adhere to Hegar's view that the uterus and vagina form the duct of a gland, the ovary. Disappearance of this gland results, as in similar processes in other glands, in disappearance of the duct also, just as at the formative period of the organism the development of the duct is related to that of the gland, so when the ovaries are wanting, the uterus and tubes are absent or imperfectly developed. In case of absence or rudimentary development of one ovary, the corresponding cornu of the uterus is wanting or rudimentary. At the menopause this disappearance of the gland, or atrophy of the ovary, takes place; it is accompanied by a more or less sudden cessation of menstruation, and a retrograde metamorphosis of the uterus, vagina, and external genitals, but atrophy of the ovaries occurs very gradually. Puech found in one case that the ovaries were of normal size three years after the establishment of the menopause. Kiwisch describes the structural changes in this gland as consisting on the one hand in an increase of the connective-tissue stroma from the periphery towards the centre, the gradual hypertrophy of which results in destruction of the epithelial elements, and on the other hand, the Graafian vesicles themselves undergo retrograde change, fatty degeneration leading to complete atrophy of the granular epithelium and consequent cystic transformation of the vesicle with contraction of its cavity, and new formation of young connective tissue, which latter finally increases to such an extent that the entire ovisac is transformed into a fibrous mass. Following these microscopical changes, the entire organ becomes harder and smaller, decreases in length and breadth, and its exterior becomes nodular. In old age the ovary shrinks to a "flat, fibro-vascular induration." Retrograde metamorphosis takes place also in the uterus, vagina and external genitals. At first an increase in the size of the uterus (from increase in the amount of blood) is frequently noticed; later it becomes smaller in all its dimensions. The wall of the organ becomes much

thinner, the os internum smaller, and is often even obliterated. The cervix becomes shorter and thinner, sometimes hard, sometimes as flabby as a membrane. Uterine catarrh occurs almost invariably, and only ceases in advanced years. Displacements of all kinds are frequent, but, on account of the now greatly diminished weight of the uterus, these are without significance. The vagina is at first almost always uniformly hyperæmic, disappearing as the vessels successively atrophy, but it takes place much sooner in some spots than in others, hence that characteristic appearance of dark-red spots on a very pale ground. Whether or not it assumes the character of a true inflammatory process, gradually the vaginal canal becomes partly or entirely contracted, so that it is narrower, shorter, and often assumes quite a conical shape at its upper end. The mucous membrane gradually loses its rugæ, and presents a pale, grayish, blanched hue. The introitus is also narrowed, and its mucosa shows the same changes. Hegar has properly called our attention to the fact that coitus in individuals with the "contractions and even strictures so often observed," representing the results of this atrophic change at the climacteric, may produce nervous manifestation, while the changes in the mons veneris and labia consist in the gradual disappearance of their adipose tissue. The labia degenerates into mere flaps of skin, the thinning out of the pubic hair, essentially to senile changes, and not directly to those of the climacteric. Even these last mentioned tissue-changes, as well as most of those before described, are observed sometimes earlier, sometimes later, for, as Hegar adds with regard to the shrinking processes just mentioned, we see them after the climacteric, and "sometimes even in young women." We must refer at least the beginning of all these changes to the time of the menopause; the further development of the same, then, is included within the limits of this period or extends more or less beyond them. Only in this way do we assign to these changes their proper sphere; the process which is implied in them all, retrograde metamorphosis, which affects the entire sexual system of the women, has its definite beginning, at least, at the time of the menopause.

Hemorrhages are the foremost pathological phenomena of the genital tract during the climacteric; irregular and rather profuse bleeding is of quite common occurrence at this period. Sometimes, however, these attain considerable importance, and the patient may by single or repeated hemorrhages, be brought to a condition of dangerous anemia. This tendency to hemorrhages, in the absence of any gross changes in the pelvic organ, is difficult to explain; the true causes are varying in different cases. In many instances they are due to the senile rigidity and friability of the uterine vessels, which are not in condition to offer sufficient resistance to the blood pressure that is brought to bear on their walls. According to Kisch, the menorrhagiae at the climacteric are due to the softening and relaxation of the uterine tissue, while additional causes are found in circulatory disturbances in the pelvic organs and constriction of the vena cava inferior, whereby the overflow of blood from the pelvic vessels is hindered, and a chronic stasis in the uterine walls is produced. Frank attributes it to early and profuse menstruation, frequent and difficult labors, frequent abortion, and also to excess in drinking.

Hegar affirms that in certain cases there is only simply an absence of any etiological factor. Börner sometimes observed such profuse bleeding in individuals who presented absolutely no ground for the supposition that structural changes in the vessel-walls have already occurred, and in whose cases the causes above mentioned (frequent labors, etc.) do not exist, but whom he was obliged to regard before and after the menopause as intact, so to speak. The only explanation of such cases seemed to me to be this, that the single or repeated floodings in question were only the expression of vaso-motor disturbances, such as those in other regions, which frequently characterize the menopause. These hemorrhages might, as regards their etiology, be compared with those irregular, sometimes very profuse uterine hemorrhages, which we frequently observe in certain women, having no connection with the menopause, due simply to different disturbances of the nerve centres (fear, anguish, etc.); they are also analogous to certain other vicarious phenomena, epistaxis, intestinal hemorrhages. "Congestive symptoms," which, as we shall see later, are almost always to be regarded more properly as a vaso-motor disturbance than as the result of "excess of blood." And they shall finally (which seems to me of the most importance) be generally considered as nothing more than a special form of "sexual disturbance," a view which always leads us again to seek for their origin within the abdomen, but they are to be classed exclusively with the so-called general phenomena of the climacteric, the foundation of which is in certain profound changes of the organism outside the sexual sphere.

The physician should, at the menopause, consider most carefully every variation from the normal; this applies particularly to every case in which there are marked uterine hemorrhages; even before making an examination in cases in which hemorrhages depend upon some pathological condition of the abdominal or thoracic viscera, we should suspect three things: either the menses are constantly becoming more profuse long before the usual menopause, or atypical hemorrhages are already beginning unusually early, or the hemorrhages at the ordinary time of the menopause (regular or interrupted by irregular intervals) have become unusually profuse, or, finally, the regular or irregular losses of blood are unduly prolonged, often far beyond the fiftieth year of life. Whenever a patient gives a history pointing to these facts, we must at once make a thorough and accurate examination. The physician should from the outset be too mistrustful of such cases; he ought not to allow himself to be diverted from an examination which has once been decided upon. Finally, typical or atypical hemorrhages may, as before stated, be usually prolonged in the diseases in question. One of the most essential changes at the climacteric period, which will hardly escape the attentive observer, is that of the woman's psychical condition. Vagaries in this direction are generally observed by associates, and by the physician if they become marked. The slightest forms usually escape the notice of all; the women themselves, on being questioned on this point, give the first information regarding the change in their characters, which had for some time completely escaped them. The question to be asked in this connection naturally does not relate to this or that positive change

of disposition, but may be a very vague inquiry regarding the quality of dispositions. It is quite striking what a marked similarity usually exists between the individual answers obtained. These nearly always give evidence of a certain lowering of the vital energy, if I may so express it. The daily duties lose their interest, and there is a certain indifference toward everything, or everything seems to the patients to be more difficult and wearisome than it used to be; they are often surprised at finding themselves plunged in a certain stupor or dejection, while they are troubled more than before with the consciousness of their own imperfections, and the transient character of every pleasure, and with forebodings of sickness and death, etc. Some think they have become forgetful, while others fear that they are no longer able to perform this or that bodily exertion; others, again, disquieted on account of the possible loss of their property, while nearly every one experiences, consciously or unconsciously, a certain amount of ennui, more or less of a disposition to peevish melancholy. These changes in the disposition are usually confined to certain times in the day; they are often absent for days and weeks. If the menses have not yet entirely ceased, but still recur now and then, there is sometimes manifested a certain connection between the change of disposition and the periods (the peevishness generally appears during the days preceding the beginning of the flow), yet this relation is often entirely absent. The psychical vagaries in question frequently begin a long time before the first irregularity in menstruation is noticed, often appear at and after the time of the irregularities without any relation to the menses, and continue for years after the cessation of the flow. This is true of another form of psychical disturbance, which, in my experience, is more rare, which produces in women a certain increased irritability, impatience, restlessness, tendency to outbursts of anger, etc. The importances of the climacteric as an etiological factor in the development of actual mental maladies has been clearly affirmed by distinguished authorities; the connection between mental disease and the menopause is extremely common. According to Brierre de Boismont, Esquirol and Griesinger, the climacteric generally exerts an aggravating influence, but sometimes improvement, or even perfect cure, occurs at this time. I saw an example of the latter result in a case which was complicated by delusions of persecution. The woman is now just at the commencement of her menopause, but mentally she is perfectly sound again. If we see actual mental affections develop in consequence of the menopause in women who are healthy, or at the most nervous and excitable, and then again existing psychical disturbances become worse at this time, or change for the better until they are completely cured, we must from this draw the conclusion that the climacteric may lead to marked changes in the psychical condition of the patient in question. This applies to actual mental affections, but it applies in the same way at least to the vagaries of the slighter and more insignificant kind which interest us here, and are almost invariably observed. There is usually a sort of outspoken depression, often expressing itself by a tendency to weeping, but even at the climacteric a healthy, contented, even gay disposition may be present, even where this was not

hitherto the case. What I would call attention to here is quite different from this quality of disposition, especially the transformation of the psychical condition of the individual by the menopause, which is apparent even in these slight variations; this often merely slight change in the character is quite a characteristic symptom of the menopause. In works which discuss this subject, two factors are generally taken into account, first the processes in the sexual sphere that result at this time (much importance is attached especially to the sudden cessation of the menses), as well as certain simultaneous pathological changes that occur in these organs, such as flexion, catarrh, erosions, etc.; secondly, the reflexions of the patient caused by her condition, meditations on the loss of youth and sexual power, anxiety in view of the dangers of the climacteric, etc. Without doubt some importance is to be attached to this factor, and one or the other is often quite striking; it is necessary to remember the following facts: (1) In two different women the phenomena depending upon sexual causes (irregularity of the menses, etc.) may be identified, and both may be nervous, yet in one there may be a very slight, in the other an extremely serious change psychically. Because of the sudden cessation of the menses, on which so much emphasis was laid, I have had several cases in which the psychical alienation was really not so marked as before; sometimes under such circumstances, it was hardly noticeable. Abnormalities of the genitals frequently occur at other times without affecting the mind; if they are found at the climacteric, we cannot be sufficiently cautious in estimating their etiological value. Successful treatment of the sexual trouble, even if it is accompanied by relief of the psychical disturbance, need not be directly capable of explanation; the latter may be transient, and it frequently terminates without any local treatment. The affection of the genitals is often cured, and the psychical disturbance nevertheless does not appear. It cannot be denied that there is some truth in the supposed sad thoughts about the beginning of old age, the possibility of bodily suffering, etc., and accordingly the depression caused by them can scarcely be regarded as abnormal. But the woman's sensitive nature is often subjected to infinitely more of a shock, without any such change in her psychical individuality resulting, and on the other hand, it does not often happen that such reflexions precede the supposed alienation. It is not the reflection on the epoch in question which causes the existing ill-temper, but this peevishness is often the first thing that points to the menopause; it comes upon the woman in an entirely involuntary way, and she asks herself, her associates and the physician, what may be the cause of the change. This ill-temper also takes possession of those women who, for whatever reason, wish that the menopause was already passed, and have no reason to lament that it has finally begun. Excluding things such as those last mentioned (influence of the patient's own reflections, etc.), it will be especially important not to refer to many of the climacteric phenomena to changes in sexual organs, no matter how tempting this always is, for obvious reasons. The latter are also frequently the only evidence of the climacteric, and are nearly always the most striking one. In women who have already arrived at the climacteric without having experienced the slightest irregu-

larity in the menstruation, or any change in the nutritive condition, violent attacks of vertigo may occur. The latter often appear while the menses are regular, even before the usual time for the menopause, and we shall seldom go amiss if we regard these as the first manifestations of the approaching climacteric. The menses may disappear so gradually at the climacteric and the system may accommodate itself favorably to the cessation of the usual flow, yet severe attacks of vertigo may possibly occur.

The amount of blood lost at the time of the menopause may be disproportionately greater than before (not including the case in which actual anæmia develops), and yet there may be attacks of vertigo that are exactly similar. The periods may be absent for a long time (so that the system becomes accustomed to the cessation of the flow, and the manner of life may at the same time be quite rational, though the avoidance of sedentary habits, rich food, etc., and still vertigo may persist. Finally, as we would emphasize here, in consequence of severe climacteric hemorrhages, a profound anæmia may have developed, and a particularly nervous individual may, in consequence of disturbance of nutrition or other complications, be extremely reduced, and almost invariably under such circumstances she will complain of vertigo. But, from what has been said, it is sufficiently evident that the frequent appearance of attacks of vertigo at the menopause do not (as least, in the majority of the cases) depend upon hypætæmia, due to cessation of the flow. It cannot be denied, also, that relative hyperæmia frequently occurs at the climacteric. Now and then we are certainly obliged to suppose this mode of origin for the vertigo, as in cases in which there is dizziness when the periods are absent, and good health when they are present, relief of the vertigo after the reappearance of menstruation, or after scarification of the cervix, etc. If we assign hyperæmia as the only, or even the principal cause of vertigo at the menopause, we must do so if another cause cannot be found. In my opinion there are various things which can give a satisfactory explanation of the phenomenon in question, and that we are to take the proper view of this question if we assume at the outset that the attacks of vertigo at this period of life may rest on an entirely different basis. Clinical observations agree with this opinion. Aside from the reported cases (which are certainly not very many) in which hyperæmia is the cause, I believe that simply hysteria first, then chronic disturbances of the alimentary canal, and finally anæmia, three conditions that complicate the menopause far more often than is commonly supposed, should be regarded as casual factors of vertigo. Hysteria is especially mentioned by Landois in this connection, in addition to chronic affections of the respiratory organs, etc. In so-called gastric vertigo, according to Woakes, the abnormally irritated nerves of the stomach act upon the vaso-motor centre, especially the nerves of the labyrinth, in consequence of which variations in the tension of the fluid may be produced, and hence attacks of vertigo.

Borner describes a peculiar phenomenon, which I have seen at the climacteric, sometimes slightly marked, and once quite plainly, the appearance of a sort of compulsory movement; this term has been applied to those characteristic disturbances of motion which are

noted after the experimental injury of certain portions of the brain of animals, and which Henle refers to as "dizzy feelings in the wounded animals." The injury, according to Landois, causes in the animal in question, by irritating or paralyzing the apparatus that transmits sensations of locomotion, the delusion that the body or its environment is moving in a certain direction. The compulsory movements are executed involuntarily in consequence of this supposed motion, their purpose being to compensate for the abnormal fictitious movements by passive movements in a contrary direction. If now we observe a similar phenomenon in man (all injuries being excluded), it is most natural to infer that there is a cause of the direct "wound" corresponding to the injurious effect, and to make the external symptom, or disturbance of motion, identical with the above-mentioned forced movements. It can certainly not be clearly proved that the menopause, with its multiform disturbances of innervation (probably due to localized hyperæmia or anæmia) may give rise to conditions of irritation or paralysis of a nerve-centre, which, even if it only be transient (purely functional) in its action, may yet in its action closely simulate the cerebral lesions in question.

Very peculiar variations exist with regard to sexual desire during the climacteric period. Not infrequently the sexual passion disappears more or less completely from this time; more frequently it persists throughout the entire menopause, or, finally, it very often increases in intensity at this time, and may become positively distressing. The first-mentioned phenomenon is really the normal condition, agreeing, as it does, with the cessation of the sexual functions in general. It is often possible to show that increased sexual desire at the menopause was due to some abnormal condition of the genitals, as fibromata, flexions, etc. However that may be, the increase of the passion in question, as long as it does not exceed a certain measure, is to be regarded as one of the symptoms of the visceral hyperæsthesiæ which develop at this period. In the excessive forms, which may sometimes be associated even with general convulsions, we shall in every case at once recognize with Romberg, a neuralgic condition of the spermatic plexus. Patients during the critical years complain especially of the presence of this condition before the beginning of an actual or expected period, which has frequently begun just at the commencement of the first irregularities.

Nasal diphtheria is often overlooked, in the opinion of I. Friesner (*N. Y. Med. Jour.*, May 11, '07). The patient does not seem very sick, has only a slight rise in temperature, little change in pulse or respiration, and eats well enough. Such children may be credited with only a cold in the head. Sometimes the nasal discharge is confined to one side, and the vestibule on that side, together with the lip, is slightly swollen. The cervical glands are not always enlarged. There is generally a discharge of yellow, glairy mucus, which may later become greenish. There may be sneezing, but not so commonly as in coryza. Beyond these symptoms there is little discomfort. At first the nares show only an acutely inflamed mucosa, later there is a more or less typical membrane. The danger lies in not recognizing the lesion, and in the infection which may result from such ignorance.

THE IDENTITY OF PROTOPLASM.

BY F. B. BRUBAKER, M.D.

CHARLES DARWIN, in an elaborate series of experiments on vegetable protoplasm, has conclusively proven its ability to transmit varying phenomena of which the contraction wave is the resulting total. Indeed of all that protoplasm is capable of performing that of irritability or excitability stands in a causative relation thereto. Shall we therefore say that this function of irritability underlies all others in the physical basis of life—that is, that it is the primordial act or quality inherent in the same? We dare the assertion. The science of the inorganic is all locked within the law of octaves, while that of the organic is found within the single cell, the whole of physical phenomena being a resultant of the law of protoplasmic irritability, and without irritability there is no life, for if the single cell, except during exhaustion, fails to respond to external stimulation, it is dead, and the height to which protoplasm may build, because of this underlying property, remains for the countless eons yet to come to behold. To the unimpassioned observer these facts are truly marvelous as much in the simplicity as in the complexity of detail, for who has failed to marvel over the lowest of living organisms, so low indeed that even scientists themselves pause before the greater problem as to which of the two great series of organic beings they belong, or, following the same through numberless mutations, behold a complexity of form surprisingly beautiful? To this great height Darwin found himself in the summer of 1860 when he says: "I was surprised by finding how large a number of insects were caught by the leaves of the common sun-dew (*Drosera rotundifolia*) on a heath in Sussex. I had heard that insects were caught, but knew nothing further on the subject. I gathered by chance a dozen plants, bearing fifty-six fully expanded leaves, and on thirty-one of these dead insects or remnants of them adhered; and, no doubt, many more would have been caught afterward by the same leaves and still more by those not yet fully expanded. On one plant all six leaves had caught their prey; and on several plants very many leaves had caught more than a single insect." Many plants cause the death of insects, for instance, the sticky buds of the horse chestnut, but without thereby receiving, so far as yet perceived, any advantage, but with *Drosera* and a number of others striking phenomena present themselves, firstly, the extraordinary sensitiveness of the glands to slight pressure and the minute doses of certain nitrogenous fluids as shown by the movement of the so-called hairs or tentacles; secondly, the power possessed by the leaves of rendering soluble or digesting nitrogenous substances, and of afterward absorbing them; and, thirdly, the changes which take place within the cells of the tentacles when the glands are excited in various ways. As to the first proposition, the glands alone in all ordinary cases are susceptible to excitement, and when excited they do not themselves move or change form, but transmit a motor impulse to the bending part of their own and adjoining tentacles, which are thus carried toward the centre of the leaf; when indirectly excited by stimulation applied to the glands of the short tentacles on the disc, the exterior tentacles respond likewise, the stimulus proceeding from the glands of the disc acts on the bending part of the exterior tentacles near their bases. The central glands

of a leaf being irritated with a small stiff camel's hair brush, in seventy minutes several of the outer tentacles were inflected, while after an interval of twenty-two hours, all were again fully re-expanded. Particles of meat, dried flies, bits of paper, wood, dried moss, sponge, glass, etc., being repeatedly placed on leaves, were well embraced in various periods and again set free. When a small object is placed on the glands of the disc on one side of a leaf and as near as possible to its circumference, the tentacles on this side are first affected, and those on the opposite side much later, or, at times, not at all. If young and active leaves are selected inorganic particles not larger than the head of a small pin placed on the central glands sometimes cause the other tentacles to bend inward, but this follows much more quickly if the object contains nitrogenous matter which can be dissolved by the secretion; the tentacles likewise remain clasped over the latter much longer than over inorganic substances incapable of digestion by the plant. Falling drops of water do not cause inflection. Nitrogenous fluids act very differently on the leaves of *Drosera* from non-nitrogenous and as the leaves remain clasped for a much longer time over various organic bodies than over inorganic, such as bits of wood, glass, etc., it became an interesting question whether the plant rendered soluble organic substances and absorbed them, that is, whether they possessed the power of digestion, and it was soon observed that they act on albuminous compounds in exactly the same manner as does the gastric juice of animals, the digested matter being afterward absorbed. The gastric juice, as is well known, acts by means of a ferment pepsin, solely in the presence of an acid, and we have excellent evidence that a ferment is present in the secretion of *Drosera*, which likewise only acts in the presence of an acid, for when the secretion is neutralized by minute drops of the solution of an alkali, the digestion of albumen is completely stopped, while on the addition of a small dose of hydrochloric acid, it immediately recommences. There is, therefore, a remarkable parallelism between the glands of *Drosera* and those of the stomach in the secretion of their proper acid and ferment, nor is this parallelism the only one existing between the two series of organic phenomena at this point, for the secretion of *Drosera* will not act on any of the following substances—viz., epidermic productions, fibro-elastic tissue, mucin, pepsin, urea, chitine, cellulose, gun-cotton, chlorophyll, starch, fat or oil, neither are they as far as known acted upon by the gastric juice of animals. Again, such substances as have been found variously nutritious to *Drosera*, have been likewise found varying in nutritive degree to animals, nor is this all, for the vegetable organic feeder *Drosera*, was found not only to possess the power to digest and absorb matter of animal origin, but vegetable substances as well, for the glands absorb matter from living seeds which are injured or killed by the secretion. They likewise absorb matter from pollen and from fresh leaves, and this is also true of animals, if fed on these substances. We can therefore hardly doubt but that the ferment in both cases is closely allied and very probably identically the same. An acid being requisite in both cases, the one requiring hydrochloric, and the other an acid belonging to the acetic series.

That a plant and an animal should pour forth the same, or nearly the same, complex secretion, adapted for the same purpose, viz., that of digestion, is a striking instance of the formative power of protoplasm. If we ask ourselves the question as did Darwin, why (the glands of the centre of a leaf being irritated) those of the marginal area turn inwards, the ones nearer the centre being first affected, and slowly bend toward the centre, then those farther off until at last all become closely inflected over the object, we shall find that the glands in the centre of the leaf transmit a motor impulse when irritated to the outer or marginal tentacles. If the tentacles of a young yet fully matured leaf that has never been excited or become inflected be examined, the cells forming the pedicles are seen to be filled with purple, homogeneous fluid, the walls being lined by a layer of colorless-circulating protoplasm. The purple fluid which exudes from a crushed tentacle is somewhat coherent and does not mingle with the surrounding water. Now, if a tentacle is examined some hours after the gland has been excited by repeated touches, or by some organic or inorganic substance placed on it, or by the absorption of certain fluids, it presents a wholly changed appearance, and the cells instead of being filled with a homogeneous, purple fluid now contain variously shaped masses of purple matter, suspended in a colorless fluid, the change being so conspicuous that it is visible through a weak lens, and even sometimes with the naked eye. The tentacles then possess a mottled appearance, so that one thus affected can be easily picked from among the rest. The same result follows if the glands on the disc are irritated in any manner, so that the exterior tentacles become inflected, for their contents will then be found in an aggregated condition, although their glands have not as yet touched any object. Shortly after the tentacles have re-expanded the little masses of protoplasm are all re-dissolved, and the purple fluid within the cells becomes as homogeneous and transparent as it was at first. The process of aggregation always commences within the glands and travels down the tentacles, while that of re-dissolution travels upward from the bases of the tentacles to the glands. The process of aggregation is a vital one, by which is meant that the contents of the cells must be alive and uninjured to be thus affected, and they must be in an oxygenated condition for the transmission of the process at the proper rate from cell cell, for exposure of the leaves to carbonic acid either stops for a time the process of aggregation, or checks the transmission of the proper influence should the glands subsequently be excited by carbonate of ammonia, and this substance acts more quickly and energetically than any other. Although it is known that the protoplasm of plants exhibits its spontaneous movements only so long as it is in an oxygenated condition, this is likewise true of the white corpuscles of the blood, for only as long as they receive oxygen from the red corpuscles do they properly functionate.

The process of aggregation is independent of the inflection of the tentacles, and apparently of the increased secretion of the glands, whether these have been directly or indirectly excited by a stimulus received from other glands, and in either case the process is transmitted from cell to cell down the whole length of the tentacles, being arrested for a short time at each transverse partition. With pale colored leaves, the first

change which is perceptible under a higher power, is the appearance of the finest granules in the fluid within the cells, making it slightly cloudy. These granules soon aggregate into small globular masses. With dark red leaves the first visible change is a conversion of the outer layer of the fluid within the cells into bag-like masses; however they may have developed, they incessantly change their forms and positions, and are not filled with fluid, but are solid to their centres, and ultimately the colorless granules in the protoplasm which flows round the walls, coalesce with the central spheres or masses, but there is still a current of limpid fluid flowing within the cells. As soon as the tentacles re-expand fully, the aggregated masses are redissolved and the cells become filled with the homogeneous, purple fluid as they were at first.

If, now, we should ask ourselves the question what there is at variance between the aggregation of protoplasm within the glands and tentacles of Drosera whereby they are induced to respond to certain physiological processes of which motion is the resulting quantity, and that between the phenomena observed on the stimulation of a motor nerve whereby a muscle is made to subserve a like end, we must of necessity admit that, roughly speaking, there is none. Essentially but two structures are concerned in the evolution of nerve tissue, both of which possess special vital properties. The one, nerve fibres being composed of thread like strands of protoplasm, which connects the elements of the other, nerve corpuscles, which form the peripheral or central terminals of the fibres. Nerve fibres are therefore simply special conducting agents, having at one extremity a special terminal or nerve cell for sending impulses, and at the other end a nerve cell for receiving the impulses. These centres determining the direction in which the nervous impulse is to flow. Therefore nerves always act in one of two ways, either carrying impulses from the periphery to a centre, or from a centre to the periphery, but this is not all, for the same nerve is capable of carrying impulses in either direction. The only essential part of a nervous conductor is a delicate protoplasmic fibril. In the nerves distributed about the body, one does not meet these single protoplasmic threads, except where the fibrils are interwoven to form terminal networks, as seen in the cornea. In the peripheral nerves, this bundle of protoplasmic fibrils is covered and is called the axis cylinder of the nerve fibre. In some nerve fibres there is but one very thin transparent covering, termed the primitive sheath, while in others there is a thick layer of doubly refractive fluid inside the primitive sheath and in immediate contact with the fibrils of the axis cylinder, this being called the medullary sheath or white substance of Schwann, because its peculiar refractive properties make it look white when viewed in a direct light, and as the nerves have or have not this sheath, they are termed white or gray, the gray fibres only predominating in the sympathetic and its ramifications and in parts of the special sense organs. But we have seen in our consideration of vegetable protoplasm, as we have found it in that wonderful insectivorous plant, *Drosera*, in which of course no nerves or nervous tissue exists, that it is capable of conducting impulses which cause a contraction wave which move the tentacles. Nor is this all, for, as we cross the great

organic divide on one side of which we have protoplasm building to a great height, but never to the nerve, to the other side on which we behold the same physical basis of life building on all sides to the nerve, we are amazed to find just over the line, organisms belonging to the animal scale and yet without the nerve. In the Protozoa none of these animals present any trace of a nervous system, and yet they belong in the organic series to the animal scale. In these organisms, therefore, as well as in *Drosera*, the nervous function, or what in them corresponds to the nervous function, of necessity devolves upon the protoplasm itself, of which they are built up, that is, *that inherent in protoplasm as the physical basis of life we have the nerve*, nor is this fact at all astonishing, when we consider how protoplasm, as the potter's clay is capable of being molded into numberless forms, and that when once molded to a sufficient height, it becomes forever distinctive. But the evolution of the nerve and therefore of nervous energy, differs in no material respect, from the many other functional activities to which the molding of protoplasm has achieved, from digestion, absorption, assimilation, etc., indeed all these properties, even to the nerve, are found within the single cell. Living protoplasm is a substance which is constantly undergoing chemical changes, and it is the chemical and physical properties of this complex substance, diversely modified, which underlie all the vital functions, nutrition, secretion, growth, reproduction, motility, etc.

In that wonderfully interesting unicellular organism of the animal scale, the amoeba, each part of the organism is capable of doing the work of every other part, and the contractile vacuole may act as an organ of digestion, that is, as a stomach, or, as one of excretion, as a kidney, indeed we must go much higher in the animal scale before protoplasm even begins to specialize, for in so highly organized a being as the larva of the dragon fly, the alimentary canal not only digests, but likewise respire and supplements both by a third, viz., that of excretion. But as we go higher in the life history of organisms of either kingdom and as specialization succeeds specialization in cellular aggregates, protoplasm in its infinite capabilities becomes more and more fixed, more and more staple in functional achievements, greater and greater in possibilities.

As we take a circumspective view of vegetable structure, we sometimes wonder at its progressiveness, cell added to cell, ever building from the single cell to a height beheld alone in gigantic forest trees, or in special structure to that of *Drosera*, or on the other hand from a unicellular organism without specialization, to man. And yet we see nothing at variance in these two great classes, for there being no material difference in the protoplasmic mass of either, there can likewise be no resulting quality far differing, except by long specialization, consequently the conclusion is necessarily forced upon us, that inherent in protoplasm itself, are all the powers eventually manifest in either kingdom.

If I shall have succeeded in this essay in fixing in the minds of its readers that protoplasm being the physical basis of life, is structurally the basis of all that is organic, and that it is only by specialization of the same that it becomes distinctive in function, so that on the one hand whether as in the animal scale it contracts and becomes muscle, or on the other hand conducts and becomes nerve, I shall be satisfied, and yet the burden

of the same be in no wise lifted unless at the same time is firmly grasped the greater fact that once having become special in function, it loses toward that it travels from, and gains toward that it travels to, so that having become fixed in quality it recapitulates the same in the seed it bears, to the very minutiae. Therefore protoplasmically speaking there is nothing at variance between an apple tree and a pear tree, but specially speaking the one bears pears, and the other apples, and imparts this quality to its offspring. *Structurally speaking nerves are protoplasmic, functionally speaking they are not, but inherent in protoplasm is the nerve and so is every other functional activity to which it ever has, or ever will build, which once having become special, remains so.* But this is not the whole of physical phenomena, for protoplasm has builded other animal functions as distinctive as she has built the nerve, the liver being as distinctive in function from the kidney as the pear tree is from the apple tree. But all other physical phenomena subserves and tends to one end only, viz., the nutritive, while the nervous system tends to things higher. In the hydra all the cells act as nerves and in the higher animals an impulse producing a wave of contraction, can pass from one muscle cell to the other directly, as is seen in the ureter, or in the heart of cold blooded animals, but a stimulus applied to a nerveless muscle can only course through the muscle, by giving rise to a visible wave of contraction which spreads in all directions from the seat of disturbance as from a centre. A nerve on the other hand conducts a stimulus without sensibly moving or undergoing any change of shape, therefore muscle fibres convey a visible wave of contraction, and this is likewise true of the glands and tentacles of *Drosera*, while nerve fibres convey an invisible or molecular wave of stimulation. Nerve fibres then are functionally distinguished from vegetable protoplasmic contractions, and also from muscle fibres, and even from protoplasm itself, by displaying the property of conducting invisible, or molecular waves of stimulation from one part of an organism to another, and thereby establishing physiological continuity between such parts, without the necessary waves of contraction, and yet if we remember that when the central glands of *Drosera* are irritated, they send centrifugally, some influence to the exterior glands, causing them to send back a centripital influence inducing aggregation, we must bow before the greater problem, and acknowledge that inherent in protoplasm itself, is to be found the nerve.

The X-ray in the treatment of tuberculosis produces an auto-specific or tuberculin toxemia which arouses a salutary reaction of liberated toxins in the host; so declares J. D. Gibson, of Denver (*Internat. Jour. Therapy*, Jan., '07), who finds the cases of this disease best adapted to X-ray treatment to be those in which the germs are in sufficient quantity in the pleura, lungs, glands or elsewhere to evolve, by their destruction, the desired toxins. Gibson finds that valuable adjuncts to this treatment are rest, diet, sunshine, fresh air, change of climate and appropriate medicines. It would be interesting to learn how much these adjuvants would accomplish without the X-ray.

A PRACTICAL STUDY OF EPILEPSY.

BY W. T. MARRS, M.D., PEORIA HEIGHTS, ILLINOIS.

THIS is one of the oldest diseases that has ever been catalogued, and has existed from the earliest history of man. It is ubiquitous, and has and does now find existence in all countries and climes. Several biblical characters are known to have been epileptics, while in more modern times a few persons who gained some recognition in the world of letters and literature were victims of the falling sickness. People who lived at a time before the searchlight of truth had dawned upon them were disposed to regard the epileptic seizure as a manifestation of the wrath of his satanic majesty, or, in other words, that the victim was possessed of a devil. Hence from time immemorial there have been practised various methods of casting out devils or staying their wrath. During benighted times—and they have not been so long ago either—epileptics were subject to all kinds of abuse and maltreatment, and, like the insane, were frequently chained up or confined in loathsome dungeons or whipped and tortured.

Epilepsy, as just stated, is found everywhere, and its geographical distribution is not influenced by climate or soil. It is very common in the Arctic latitude as well as in tropical regions. Approximately we find about one epileptic to every one thousand people. It is said that there are relatively few cases of this affection in New Zealand, it being the only country that I know of that lays claim to anything approaching immunity to it.

Epilepsy being a nervous disease without a definite anatomical basis, its etiology must yet in all cases remain somewhat problematical. The causes are many and diversified; they may be intrinsic or extrinsic; internal or peripheral; tangible or neurotic; knowable or unknown. These terms do not all sound "bookish," but they are perhaps just as expressive for all that. Heredity is the strongest predisposing factor of causation. A history of epilepsy or some type of nerve instability is traceable to the parents or grandparents in a goodly number of those who acquire the disease before the age of twenty. The offspring of drunkards are especially liable to become victims of this affection, and it is said, with I don't know how much truth, that if a woman conceives from a copulation while the man is intoxicated her child is prone to become an epileptic. Other ailments or perversions in the parents that may be instrumental in the transmission of a tendency toward epilepsy in their children are neurasthenia, sexual excess, excessive use of tobacco and cigarettes, syphilis, impoverishment, and various dyscrasias. If epilepsy does not occur until after puberty the matter of heredity is hardly worth reckoning. Masturbation and sexual excesses are supposed to cause epilepsy in a certain class of cases, but this is mainly theoretical, and facts do not make the theory tenable. Many epileptics are confirmed masturbators, but this degrading habit is in most cases due to a low state of cerebration which is also a basis for the epileptic condition. Masturbation may therefore be a consequence and not a cause. Syphilis, gout and other dyscrasias are occasional causes, although they, too, may often simply coincidentally exist along with the epileptic state.

Pathological conditions involving nerves, even of peripheral location, quite often are found to be the re-

flex irritants that bring on epileptic paroxysms. An old cicatrix in which nerve endings are impinged has frequently been discovered to be a leading causative factor. Chronic sores are a not infrequent cause. In such cases it can not always be stated with any degree of accuracy whether the local irritation or the systemic perversion on which it depends is the stronger etiological element. The writer recalls the case of a bright young man, a school teacher, whose seizures were always of the nocturnal type. There was an irregular excoriation of the leg which involved quite an extensive surface. Whenever this got over its angry look and the healing process began to be promoted, there was simultaneously some sort of psychic aura which apprised the young man that an attack was imminent. The subject of treatment is here out of place, but while this case is mentioned, I shall state, in passing, that this young man prevailed upon me to produce blood-letting about the time he anticipated a recurrence of the fits. This was done merely on tentative grounds, but seemed to serve the purpose of standing off the attacks. So successful did the patient regard venesection that he borrowed a scalpel of me when he took a sojourn in the South and would open a vein himself whenever there was evidence in his mind of approaching trouble. The paroxysms had thus been pretty well stayed for over a year when death occurred from an accident not in any way influenced by his disease.

Epilepsy may be produced reflexly in a number of different ways. Injury to the brain either from intracranial or extra-cranial cause is frequent. The writer remembers a case occurring several years ago in which an acrobat in a circus became afflicted with intense headaches, which eventuated in epilepsy. The only cause discernible in this case was the fact that this man in doing his stunt was accustomed to let his brother stand on his head. There were no evidences of osseous impingement, the trouble produced having doubtless been of nervous or vasomotor character. Ocular defects a few years ago came to be regarded as the principal reflex cause in this disease, but are not now considered with so much significance. It is true that badly focused eyes are sometimes one of the strong elements of cause in children, but the ophthalmologists and opticians have carried the matter of fitting glasses to an extreme. Every man is inclined to see in his little specialty the remedy for all ills. The rectal specialist sees in pile tumors a potent cause of epilepsy, while the refraction man wants to cure the hemorrhoidal condition by putting glasses on the sufferer.

Gastro-intestinal irritation sometimes induces epileptic paroxysms, as in cases of parasites, gaseous distension, impacted feces, etc. Oftener than we are inclined to think epilepsy is dependent upon a filthy condition of the alimentary canal, the consequent absorption engendering an autotoxemia. In such cases then the cause may be put down as of systemic origin rather than as resulting from local irritation. Uterine and ovarian irritation are assigned as causes in some cases, but these should not be regarded with much concern only as possibly exciting factors. Where the disease already lies smouldering almost anything will touch it off, so the exciting cause in this, as in many other diseases, should not be given undue prominence. The

greater or less periodicity of epileptic paroxysms, and often being somewhat coincident with menstruation, lends material strength to the view that the strongest cause might be in sexual derangements. An imperforate hymen with retained menstrual fluid has been known to provoke an attack. Urethral irritation in both boys and girls have been regarded as exciting elements and in boys phimosis or an unduly adherent prepuce may always be remembered as worth while to look for.

Epilepsy has been known to ensue from the practice of simulation. Children seeing others in fits have copied after them so successfully as to engender in time an unstable condition of nerve cells and centres not unlike true epilepsy. This is just as possible in this affection as in chorea, for as a rule no pathologic process, *per se*, is back of either disease, especially in their incipency. However, in such cases as result from simulation the condition is usually more in the nature of a hysterical epilepsy which contains a few elements of both affections. There is extant many learned dissertations on hysterical epilepsy and the psychic manifestations attending each of these, but in most cases it is not a difficult matter to differentiate them and to point out the dormant elements. To be very practical in the matter, if the patient be a woman and she doesn't hurt herself by falling, chewing her tongue or otherwise, it doesn't take an astute diagnostician to make out the case. After all the exalted ego of hysteria is the main thing that distinguishes it from a mild form of epilepsy. Indeed I would sooner give a hopeful prognosis in a mild case of epilepsy than in a well-marked case of hysteria, so far as their permanent ultimate recovery is concerned.

There are various types of epilepsy and different shades and degrees of intensity. The reader is familiar with their names which, only for the sake of erudition, are of little importance. We have likewise read the observations and opinions of such men as Doctors Hughlings-Jackson, Brown-Sequard, Weir Mitchell, Horsley, Hack Tuke, and others. Migraine, vertigo, hallucination, syncope and other paroxysmal attacks appearing periodically have been classified as being epileptoid. The term "epileptoid" of late years has been made quite expansive and in this category we dump a great many of our neuroses and psychoses that do not seem to fit well anywhere else. Epilepsy may therefore be the slightest abeyance of consciousness, or it may be a veritable mental and nerve tornado with damaging and far-reaching consequences.

As to what epilepsy really is, its morbid anatomy and pathology, we shall consider briefly and in the gross. Post-mortem we find little that may pass as a result of any morbid process. Tangible evidences are for the most part wanting. The more common findings are dilated ventricles of the brain with effusion into the same, capillary dilatation in the medulla, thickening and adhesion of the cerebral membranes and sometimes induration of the brain substance. These may all be regarded as consequent upon the hyperemia that follows the convulsions and are found only in old cases of considerable duration. It has also been pointed out that in chronic cases there is lack of symmetry of the cranium, one side being more strongly developed than the other; but whether this asymmetry be a cause or consequence of the disease is not clear. Not many

years ago the medulla and pons varolii were considered the seat of trouble in epilepsy, but this opinion has in recent years been modified. What particular portions of the brain and ganglionic centres are involved to a great extent still remain in the realm of speculation. That the immediate cause of a paroxysm is the sudden release of pent-up energy (or toxines) is the consensus of most thinkers. A later theory is that lecithin, which is normally present in medullated nerve sheaths in large quantities, undergoes a change by which a toxic product is evolved. This toxine if absorbed is supposed to cause an "explosion." In view of the essential part lecithin is alleged to perform in the construction and function of the nerve cell neurolecithin is said, by those who have tested the product, to exert specific action in epilepsy. We hopefully await clinical evidence.

In substantiation of the claim that the medulla and pons were the storm centre of the trouble these things have been pointed out: The chief vasomotor centre is in the medulla and irritation here produces contraction of the muscular coats of arteries. The pons contains a mass of ganglionic cells and is the great spasm-centre. Irritation of the pons causes contraction of all muscles supplied by the cerebral nerves. If these centres be sufficiently irritated a spasmodic condition resembling epilepsy may be artificially produced. Those who believe these parts to be the principal ones involved explain the matter on the theory of congestion and anemia. A great many at the present time are of the opinion that the epileptic attack originates in the cerebral cortex. Here we also find motor and vasomotor centres, and when their equilibrium is disturbed there is a firing-off of the nerve force accumulated in the ganglionic cells. When these cells are completely exhausted consciousness is for the time being abolished. When the epilepsy is produced from the cerebral cortex the spasm is first tonic in character, but is followed by clonic. When the spasm arises from the bulbospinal centre the character of it is tonic all the way through. Epileptiform convulsions can be produced after the removal of the brain, cerebellum, pons, and a portion of the medulla. It would seem then that the spinal cord has a considerable share in the production of convulsions. It is certainly evident that no one area or centre is invariably involved in this affection.

The symptoms are too well known to spend time and space to enumerate them. The convulsions vary greatly in their intensity from the very mildest to the most profound. There is very little degree of regularity in their recurrence, except sometimes in women, when they may be synonymous with the menstrual periods. The aura is present only in a limited number of cases. It should be remembered that there are anomalous manifestations of the fit in some individuals. Instead of the spasm and the succeeding comatose condition the patient may be seized with a desire to get out and run away; or he may make a spectacle of himself in doing some outlandish thing such as disrobing or some other act of indecency. He will not have any recollection of the event no matter how atrocious his acts may have been.

As to the prognosis and general course of the disease, there is a varying condition of affairs. A good many epileptics live to a rather advanced age. A great

many die from accidents to which they are peculiarly liable. In not more than half the cases is there evidence of mental impairment; but in those who are mentally afflicted the downward progress is as a rule steadily certain. Among the early signs of mental deterioration are loss of memory and lack of concentration, persistent headache, peevishness, nervousness and muscular twitchings. Such cases, so far as concerns their prognosis, depend mainly upon their general condition rather than upon the frequency and severity of the seizures. Hopeless mania or dementia is the ultimate end of those in whom there is waning mentality, a condition of quiet imbecility usually being the last stage of the disorder.

A physician is seldom called upon to diagnose a case of epilepsy. In other words, the condition is usually quite well known to the patient and to his friends and family. It is most easily confounded with hysteria, but its relation to that condition has already been touched upon. There should be no difficulty in differentiating an attack of epilepsy from apoplexy, alcoholism, etc., although this error has frequently been committed. When epilepsy complicates some other condition there may be some excuse for making a momentary mistake in the diagnosis.

Treatment.—There are evidences that the epileptic is gradually coming to his own and will have more attention in the future than has ever been his privilege. He has long gone without recognition, an outcast, a social derelict, but epileptic colonies are everywhere being fostered and this class of unfortunates will perhaps in a few years have as much care as the insane. Epilepsy has been regarded as such a hopelessly incurable disease that its treatment of late years has to a great extent passed into the hands of quacks and irregulars. Statistics show a permanent recovery of only about 5 per cent. of all cases. Judicious, systematic treatment ought to record a higher percentage of cures. We can hope to somewhat ameliorate the condition in most cases where an adverse heredity is not too marked and where there is not mental and moral degeneracy.

Every case of convulsion in a child may be thought of as possibly being epilepsy; or at any rate when the convulsions have a tendency to recur there may soon be superinduced a nerve instability that may eventuate in epilepsy. Much more can be accomplished by taking the matter under control in its very incipency, for here it is that curative and prophylactic measures are worth while.

In the management of epilepsy remedies should not be used in a haphazard manner, but every function that is abnormal should be improved. Frequently a peripheral irritation may be found to account for the trouble, circatrices having already been mentioned. Exostoses and necroses in bone are also causes. Many cases have been relieved by trephining the skull and removing spicula of bone or a portion of thickened skull which impinged upon the brain. I would admonish young men—and older ones, too, for that matter—to be slow and conservative in jumping in and performing this operation unless it is clearly indicated. Only a very small per cent. of cases, indeed, can we hope to benefit by trephining. The lungs, liver, kidneys, stomach and bowels, as well as the uterus and annexa should have a careful scrutiny as possibly being the seat of local irritation.

Whatever is wrong should be made right, so far as may be practicable. It should be remembered that the disease may persist after the reflex that caused it has been eliminated. A central trouble with disturbance of cell equilibrium has been engendered, or more clinically speaking, the habit has been formed. Good hygiene and a perfect nutrition over a long-drawn period of time will improve cases that are seemingly hopeless. The value of pure air, good habits and cleanliness internally, externally and all the time cannot be too strongly urged. Under this line of treatment the incurable (?) insane in an incurable insane institution in a Western State have wonderfully improved, and many of their patients have recently belied the name of the institution and are being released cured. We are optimistic enough to think a higher percentage of epileptics could be improved if they only had judicious management.

Autotoxæmia is a condition upon which the disease often depends, improper eating and constipation having brought about that condition. The dull, listless boys and girls with large abdomens, pudgy features and chalky complexion generally suffer from the reabsorption of toxic matter from the alimentary canal. In such cases—as in every case—interdict the eating of beef or pork and confine them to a diet of fruits, cereals, vegetables and milk. Begin treatment with high enemas and continue until the bowels are positively known to be clean. Sometimes scybala that have hung in the angles and turns of the intestines for weeks will be removed. To supplement these flushings a goodly-sized dose of castor oil should be given one day and a saline purge the next, and alternated so on thus. The oil acts in a mechanical way and melts in time any desiccated debris that comes before it. The salts have a hygroscopic action and “wring out” the mucous coat of the alimentary tract. If there is a coated tongue showing badly deranged secretions, give calomel along with the other treatment until the tongue is clean and moist. I would not in such cases give the mild chloride in less than one grain doses and often five will do better. With the secretions so sluggish there is a peculiar tolerance to this drug. Eliminate thoroughly and persistently in cases of this type. Educate the patient to drink water in copious quantities and with religious regularity.

Do not let epileptics have the chlorides in any way that can be prevented. Teach them to eat food that has not been salted. It has been argued by some one of late that the bromides in this disease owe their efficacy to the antagonizing effect they exert upon the chlorides. There are, however, other elements, toxic and nontoxic, that act as irritants. The bromides, by the way, are still our most dependable drug agency. The bromide treatment should be well pushed in cases where there is tolerance, but should be suspended when it produces mental and physical inactivity which in many ways simulates the epileptic condition. A combination of bromides usually is attended by the best results, but many of late exact a preference for the bromide of strontium. In cases where there is tumultuous and irregular heart action digitalis gives good results; while in others where there is nervousness and considerable headache cannabis indica is indicated.

In plethoric cases a depleting and alterative course of treatment with salines and alteratives will often secure happy results. Iodide of potassium in gradually ascending doses is always a commendable, though tentative,

procedure in cases where any dyscrasia or obscure systemic derangement may be suspected. It should be given well diluted; likewise the bromides. Anæmic individuals should be built up. Air, food and sunshine are the best remedies for them, although iron and cod liver oil may be made to do supplementary work.

Epileptics should have abundant sleep, as it is then that the nerve cells and ganglionic centres receive their nutrition and tone. The bromides produce somnolence, but not always sleep. We have a number of hypnotics, but chloral hydrate is after all about as safe as any of them. Some one of the products of hyoscyamus may act kindly in some cases. If the patient's habits and functions are carefully regulated, however, sleep will usually not require a great deal of coaxing.

Electricity, hydrotherapy, venesection and other methods may be of value in selected cases, but not as routine measures. Above all else the epileptic should not be made an animated apothecary shop and made to swallow quantities of nasty and useless drugs. If we consult a text-book, unless it be a very recent publication, we find a great many remedial agents that are "good for" this disease. What good could be expected from the salts of silver, copper and zinc? If the patient is in a state of putridity inside it might be argued that the antiseptic effect of such remedies is favorable. But when a cleaning up is really needed it should be done in a way that is worth while.

To summarize in a word, I would say that if we really want to help our epileptics we must regulate their habits and way of living, individualize them for study and treatment, and, in fine, regard their lot with a greater degree of significance.

SUBCUTANEOUS DIVISION OF THE FIBERS OF THE ORBICULARIS MUSCLE FOR OVERCOMING "CROW'S FEET."

BY CHARLES C. MILLER, M.D., CHICAGO.

THIS is a comparatively successful operation, of great simplicity, and one which in my experience has never been followed by ill or unpleasant after effects. I seldom perform it alone, although in selected cases it may prove entirely adequate for securing the desired effect. Some women are greatly distressed by the early appearance of radiating lines external to the outer canthus of the eye, other women are distressed to an equal degree by the appearance of these lines at about the usual period of life.

By subcutaneous division of the orbicular muscle I am reasonably sure I have prevented these lines developing in some cases, minimized their development in others and delayed their development in a third class. If this operation accomplishes these three results or any one of the three and the operation is harmless, it is a valuable addition to the numerous operations which we may use to improve the appearance of this region. When lines have already formed, to eradicate them as far as possible the skin may be loosened along the margin of the lid near the outer canthus and then a portion of the

skin excised and the interval sutured close to the margin of the lid. A slight linear scar will not show at this point and the operator eliminates a portion of the skin which folds and wrinkles.

Many patients are more than willing to submit to a canthotomy when they are told that this little operation will add somewhat to the size of the palpebral interval, and when the skin at the external canthus is incised the opening gives ready access to the small sharp hook which may be passed beneath the skin to divide the fibers of the orbicularis muscle.

I am in the habit of dividing this muscle at two points. The hook is passed somewhat upward and outward well beneath the skin and then the hook is used to cut through the fibers of the muscle, then the hook is passed somewhat downward and outward until it is beyond the fibers again and the fibers are divided a second time.

When the hook is external to the eye the patient may be instructed to contract the orbicularis and the operator may then be sure that the hook is passing beneath the muscle. If the skin is lifted up with the index finger and thumb and the fibers of the muscle are separated from it somewhat the operator may more clearly appreciate the relation of the hook to the skin.

Subcutaneous division is accomplished after the parts have been thoroughly infiltrated, and the operation should be painless. The hook might be entered through the skin at any other point than at the external canthus, but this is the situation which appeals most to me, as at this point a slight scar will not show at all.

Some discoloration as the result of subcutaneous hemorrhage may be expected to follow this operation, but this is easily hidden by cosmetics. The face of the patient should be thoroughly cleansed before operation and the hands of the operator should be clean and instruments sterile.

The members of the profession have been ignoring the subject of featural surgery, while for years the press of the country has been devoting thousands of pages to beauty chats and developing a demand for the surgeon capable of operating and relieving many of the featural imperfections which will respond to nothing short of surgery.

Advertisers have monopolized this lucrative field for several years and ethical members of the profession when consulted by their patients regarding these operations have laughed at them and told them to leave their faces alone, but the demand has been created, the discontent raised, and these patients are not to be dissuaded by ridicule, so that though they may hesitate, in time they will consult the charlatan if they cannot find a physician or surgeon in good standing who will intelligently consider the condition from which they wish to secure relief. I have seen a number of patients during the last few years who have been hopelessly mutilated for life by the criminal carelessness of charlatans, and yet every one has recited a history which included the consultation of one or more reputable physicians before the advertiser was consulted. Practitioners must acquaint themselves with this work if they hope to advise their patients as to these conditions, and as

every practitioner will be more or less frequently consulted, I cannot but feel that the present day policy of disregarding the work and its possibilities is an unfortunate one. A few years hence a reputable body of surgeons will devote themselves exclusively to this branch of surgery, and every practitioner who operates at all will perform the less difficult of these operations. The day must come, for the people will not be denied. In the meantime members of the profession cannot do better than to realize that ridicule will not dissuade without convincing argument as to the impracticability of a proposed operation, and should they be unacquainted with the possibilities of this special field they can take no better step than to recommend such cases to the conscientious and intelligent surgeon who has manifested a special interest in the subject.

70 State street.

Pulsus Paradoxus and Pulsus Bisferiens.—J. Barr (*Brit. Med. Jour.*, April 29, '07) discusses the effects of respiration upon the circulation. He finds that the thorax contains both an aerial and a vascular cavity; any diminution in the thoracic pressure affects both these cavities. In respiration both are enlarged; but, as they are complimentary to each other, they will, according to the freedom of inflow, be variously affected by the suction. In ordinary breathing the air enters so freely that there is scarcely any negative pressure; consequently the circulation receives very little assistance. But in deep breathing there is a great negative pressure; so that the blood rushes on in the veins and capillaries, the arteries are rapidly drained and the pulse disappears. The effect is more pronounced when the blood pressure is low, the arteries soft and pliant with supermial brachial veins. There is then greater scope for draining the arterial branch; wherefore the arteries are more completely emptied, and therefore take longer to fill. The phenomenon is better observed when the arm is depressed than when it is elevated, the arteries being more contracted, and the veins being comparatively empty. Where there is high blood pressure or rigid arteries, the respiratory pump can have little effect upon the pulse. This respiratory phenomenon, the *pulsus paradoxus*, exists in the leg as well as in the arm. Oftentimes the pulse is more affected by rapid emptying than by such defective filling of the arteries as may happen in mediastinitis, extensive adhesions of the pleura or pericardium, moderate left pleuritic effusion or conditions when the lungs cannot fill up the enlarging thorax or encroach upon the heart. The *pulsus paradoxus* is well marked in laryngeal diphtheria, when the children are not young and their chest walls are firm; but in the very young, where there is almost complete laryngeal obstruction, it is not seen because the soft, pliant costal cartilages are sucked in and the negative pressure is thus neutralized. If the venous return from the arm is obstructed without shutting off the arterial supply, the pulse will not be obliterated at the wrist. In cases of *pulsus paradoxus* the left ventricular systole may be delayed or abolished for one or more beats, owing to defect in the diastolic tension. The aspirating effect of the thorax causes a sudden emptying of the veins to fill up the vacuum in the chest, and with

this removal of the obstruction to the capillary flow there is a simultaneous depletion of the arteries. This pulse then is due to either defective filling or rapid emptying of the arteries, or to both of these causes. In the former case a weak right heart and a large lung reservoir are important factors; in the latter a good respiratory pump and low blood pressure are the causal agents. The *pulsus bisferiens* has been studied by T. Lewis (*Brit. Med. Jour.*, April 20, '07), who concludes that the only condition constantly related to this palpably double pulse is a greatly dilated and hypertrophied left ventricle. It is described as having two beats, the second of which is really a reinforcement of a prolonged systole. The case is not one of *pulsus bisferiens* when the apices of the two waves are separated by a time interval of less than one-tenth of a second, and in which the second wave is not prominent. The condition is by no means rare; Lewis detected a double topped pulse in 13 out of 20 unselected cases of aortic regurgitation. In three of these cases it could be seen in the cervical vessels. There seems to be two types of this pulse; the one associated and the other not associated with arteriosclerosis.

Concerning Tuberculosis was the modest title under which a quarter of a century ago Robert Koch delivered his now memorable lecture before the Berlin Physiological Society. The manner in which this paper, marking, as it did, the beginning of a new era in the fight against tuberculous disease, was received, is interestingly described by Dr. F. Loeffler (*Deut. Medicin Wochenschr.*). The hall was crowded with an expectant audience of specialists. Koch himself was not over sanguine regarding his reception; he was prepared to wait years for recognition of his theory, nor was he at that time so eloquent a speaker as he subsequently became; which no doubt explains why there was no outburst of applause when he came to the climax of his discourse, culminating in the proof that tuberculosis is a parasitic disease. But there was—as oftentimes happens in medical assemblages—something more eloquent than applause. His arguments had been so cogent, so logical, so well supported by the results of experiments, that his colleagues had nothing to say; and although a few faint protests were heard from Virchow and others, Koch's doctrine was soon accepted, and is now established beyond peradventure.

England's loss in Chemistry was commented on recently by Prof. Lunge of Zurich, who reminded his audience at the Royal Institution that when the nations were awakening on the dawn of industrialism England had a long lead. Inorganic chemical industry was developed in Great Britain up to the middle of last century to an extent greater than in any other country by the Muspratts, Tennant, Gossage, Dunlop, Chance and others. Then German and Swiss chemists—Lunge, Caro, Pauli, Griess and Mond—came to England to learn. Some of these men stayed, to the mutual advantage. However, some of the great advances in English chemistry were made by men outside the profession. Meldon, who reformed the chlorine industry, was a journalist; Bessemer was a brass founder; Thomas a clerk in the war office. It was a mistake to imagine that science did not count—a mistake that has cost England "many, many millions."

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OR

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ECHOES OF THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

THE American Medical Association held its 58th annual session June 4-7, 1907, at Atlantic City.

The registration was between 3,700 and 3,800, a slight decrease from that at the Boston meeting in 1906, but easily accounted for by inclement weather and the fact that a meeting in any large city draws a considerable number who would not or could not attend at a distance from home. Between 3 and 4 per cent. of the entire medical population of the country was actually in attendance and it is probably a conservative estimate that 10 per cent. of this population is actively connected with the Association to the extent of attendance every two or three years and a live interest in the transactions and organization of the central national body.

The tone of the Association meetings has changed entirely in the last ten years. Most of the sections seem to have settled down to hard, scientific work, and while sociability remains a prominent feature—and one whose importance must not be ignored—the last two or three meetings have been marked by less elaborate entertainment, especially in the way of social functions and side trips which conflict with the sessions and the members are to be found in greater and greater proportions engaged in listening to papers or studying the scientific exhibits, rather than in promenading, sight-seeing and visiting in the commercial exhibits building.

What has become of "Doc" with the breezy manners and breeze-blown whiskers, the long black coat and hypertrophied watch charm, who used to describe his practical experience with malaria and dandelion root and ridicule germs and new-fangled notions? Where are his wife and daughters in the alpaca dresses and flowery hats who so eagerly and thor-

oughly availed themselves of the hospitality offered? We used to be a little ashamed of these types, especially on account of the impression which we feared they would make on the lay hosts of the Association, but now that they are gone, we are sorry if they have died, sorrier still if they are kept away from the meetings by an unfriendly atmosphere.

Perhaps we are too like the mother who objected to her daughter's studying physiology in the academy because it was "rude for a lady to know about her works," but it occurs to us that the pathologic exhibits are, in many instances, not suitable for the lay guests of the members. "Mulberry calculus in the bladder," one of the visiting ladies read from a label, and then added her comment: "How cute!" "Come this way, my dear, I want you to see this aneurysm," were the words we heard from one of the physicians, apparently to his wife. At some times, the visiting ladies interfered with access to the specimens and we would suggest that both convenience and propriety require a pretty rigorous limitation of the scientific exhibit to physicians.

The conflict of medical and medicine interests still stirs up the section on Pharmacology and Therapeutics and a very warm debate followed the suggestion to register in the section, physicians who had not definitely affiliated with it at the general registration.

There is still an undercurrent of distrust of the official organization of the A.M.A., which was manifest at the recent meeting by the wide distribution of reprints of editorials from *American Medicine*, pointing out certain dangers of the elaborate representative government of the A.M.A. We agree with the general statement of the existence of such dangers and, indeed, have already called attention to them. So, too, it is very reasonable to assume that the executive offices of the Association require a counterpoise against the tendency toward too great individual influence in the conduct of the affairs of the Association and even toward gross mismanagement with purely selfish ends. In particular, the editorial criticism that offices requiring widely different personal attributes, are united might better be separated, seems to us excellent on general principles.

But (and the *but* is important) it must be remembered that there has been a tremendous increase in both the largeness and the greatness of the A.M.A. within a period of ten years and that the reorganization of 1901 has proved a practical success, admitted even by those who regard the present plan of organization as somewhat inelastic and by those who have made pointed criticisms of unfairness and unwisdom in regard to certain details. It must also be remembered that the reconstruction and extension of usefulness of the

A.M.A. have been brought about largely by the very factors criticised.

Thus, while by no means opposed to criticism and discussion of plans safeguarding the further progress of the A.M.A., it seems to us that this progress should not in any way be impeded by lack of enthusiasm or by untimely censure and that, on the contrary, the present ought to be marked by every manifestation of loyalty, respect, and gratitude toward the men whose skill, foresight and energy have made the Association what it is to-day.

The independent medical press ought to be either in support of the *Journal of the A.M.A.* or else it should open its columns to direct, specific criticism of the *Journal* and the Association—or, rather, it should be both loyal to the interests of the Association, and, if necessary, frankly critical of whatever may require censure or investigation. But let us wield the scalpel, not the hammer.

THE SCIENTIFIC TEMPERANCE FEDERATION.

THE organization thus named was begun December 21, 1906, for the sake of collecting and rendering available, facts bearing on the various phases of the alcohol question. It seeks to obtain books, pamphlets and journal articles from the most varied sources, and offers information to those applying to the secretary, Miss Cora Frances Stoddard, 23 Trull street, Boston.

It is too early to judge as to the merits of this federation work, and we beg to emphasize to those interested that just as the "man behind the gun" is the determining factor in the efficiency of the navy, so the value of any such organized educational effort is not the worthiness of the purpose nor the enthusiasm of the organizers but the scientific competence of the central bureau in its actual discharge of its duties.

The scheme of organization is exactly that which we have already advocated for medical study generally. Writers and students are greatly hampered by the difficulty in obtaining statistics and information as to what has already been accomplished. It is practically impossible for any individual to keep in touch with all workers even in limited fields, and often observations, made along one line, have an important bearing along lines that, superficially considered, seem entirely independent. At present, almost the only available means in collecting bibliographies and statistic material for thorough studies along any scientific line of medical thought, is the personal collection of data which can never be complete and which is out of the question except for those with considerable leisure and convenient access to libraries or else the costly method

of employing some searcher having these facilities but possessing little personal interest or previous acquaintance with the subject assigned. Obviously, the title of an article often gives little intimation of its nature and often valuable material is contained in articles bearing on an entirely different subject than that to which it is applicable. Only careful, routine reading and cross indexing, by a specially trained corps of statisticians, can insure the preservation of information in a complete and accessible form.

We extend the best of wishes for success to this new bureau of information and suggest that by collaboration of the government medical services and the American Medical Association, a similar bureau of more general scope ought to be organized. Here is also a great field for philanthropists for, while opportunities for research have been rendered possible in various institutions of comparatively recent date, these opportunities are, at present, limited to specially chosen workers, who are, for the most part, out of touch with clinical medicine.

We may also, in no pessimistic spirit, utter a word of warning to the Scientific Temperance Federation, which applies equally to any organization of limited scope and actuated by strong moral sentiment. Such work as this should be in no way hampered by preconceived ideas or biased by ultimate objects. What is wanted is absolute fact. If opinions are recorded at all—and no line of investigation can be entirely free from them—the utmost impartiality should be shown to all observers, and while "authority" should have due weight, too much attention should not be given to the momentum of previous good work by any individual. But from our acquaintance with those behind the present movement, we feel assured that this warning is scarcely needed and that the work of the Federation will be of a higher order than that of many intemperate, temperance organizations.

ADAMS-STOKES DISEASE.

ADAMS first described this syndrome in 1827; but not until recently, it would seem, has the essential lesion been located.

It is the "bundle of His" which is involved. This narrow band, the only demonstrable muscular connection between the nervous and arterial chambers, arises in the septum of the auricles below the foramen ovale and passes downward and forward through the trigonum fibrosum of the auriculoventricular junction where it comes into close relation with the mesial leaflet of the tricuspid valve. (Osler.)

The lesion in this muscular "bundle" disturbs or breaks the normal peristaltic wave which, beginning

at the venous end of the heart, and passing through first the auricles and then the ventricles, terminates in the heart walls; the auricles contract more frequently than the ventricles—and thus ensue the phenomena characteristic of "Heart Block" or Adams-Stokes disease.

There is a slow arterial pulse, 30 or 20 or less per minute; sometimes twenty seconds may pass without a radial beat. There are pronounced pulsations of the engorged vessels in the neck, at intervals more frequent than the radial pulse, the ratio being 2 to 1, or 4 to 1, or even greater. There are brief periods of syncope or vertigo, or apoplectic or epileptiform seizures—due undoubtedly to the resulting irregularities in the cerebral or medullary circulation. In a case which came to autopsy Butler¹ found in addition to these symptoms that the seizure began with marked pallor; the eyes were rolled up and to the right; the head was turned to the right; the lips were cyanosed, the arms were rigid with slight clonic movements, and there was brief unconsciousness verging from partial to complete. In this case there was vomiting before the attacks.

The characteristic phenomena here set forth were paralleled by Erlanger in experimental constriction of the auriculo ventricular bundle in the dog. Cooper² reported a post-mortem finding in a case of Heart Block, in which a lesion of the bundle of His was demonstrated. In another Ashton and his colleagues³ proved by tracings taken coincidentally from the apex beat, the radial artery and the jugular vein, that the auricular systole was never more frequent than the ventricular. On autopsy they found that a gumma had completely cut off the muscular fibres we have indicated as the seat of the disease.

In Butler's case above noted the patient, a man of 43, had contracted pneumonia several days before his death. But an affection which had been considered paroxysmal Bradycardia, originating probably in an attack of typhoid fever, had existed for at least twenty years. On autopsy it was found that among a number of interesting pathological changes the bundle of His had undergone fatty infiltration to the extent that it was atrophied to one-fifth its normal size.

Among the factors which may lead to the lesion responsible for Adams-Stokes disease are fevers, arteriosclerosis, myocarditis and syphilis. It would seem that heart block may also be induced by functional or neurotic conditions; or such as exhaust the automatic motor apparatus of that organ.

¹ Butler (G. R.): Heart Block (Adams-Stokes Disease). *Am. Jour. Med. Sc.*, May, 1907.

² Cooper (C. M.): Adams-Stokes Disease. *Jour. Am. Med. Assn.*, July 28, '06.

³ Ashton (T. G.), Norris (S.W.) and Lavenson (R. S.): Adams-Stokes Disease. *Am. Jour. Med. Sc.*, January, 1907.

AMBIDEXTERITY.

THIS is a faculty which, though useful occasionally to the surgeon and the obstetrician, requires a great deal of practice to become proficient in; and among the manifold qualifications which the present-day physician must acquire, and the attainment of which well nigh overtax his physical and mental resources, there are certainly others more useful and more desirable. Besides there are actually disadvantages in ambidexterity, as when a colleague skilled in this way, admitted that before doing a thing, he wasted no little time wondering which hand he should employ. Sir James Crichton Browne, in a recent discourse on "Dexterity and the Bend Sinister" before the Royal Institution in London, held that on the large scale the ability to use either hand equally well is both impossible and undesirable; it is "by the superior skill of his right hand that man has gotten himself the victory," and to try to undo his dextral pre-eminence is simply to fly in the face of evolution. Right-handedness is a very old story, though during some twenty centuries past there have been innumerable eruptions of ambidextral enthusiasm, the last one having eventuated some five years ago. Nevertheless, right-handedness is manifest in the art of Greece, Assyria and Egypt, and glimpses of it are to be found among our ancestors in the Bronze Age and in Palaeolithic times. Some observers claim to have detected foreshadowings of it even among the lower animals (but these observers, never fear, could only have been "nature fakirs"). Undoubtedly, however, all peoples, however savage, have in all times used preferentially not only one but the same hand; nor does Browne know of any civilized race manifesting any degree of either handedness. The statement that the Japanese are by law and practice ambidextrous is, on the authority of Baron Komura, without foundation. Browne goes so far as to believe "it doubtful whether, strictly speaking, complete ambidexterity exists in any fully developed and civilized human beings, though sometimes very close approximations to it occur." But among microcephalic idiots, in whom the small-headedness is due to arrested development, left-handedness and ambidexterity have been found to reach a proportion as high as 50 per cent.

The source of right-handedness lies, indeed, much deeper than voluntary selection. It must be sought in anatomical configuration. We know, of course, that the movements of the right hand are through crossed fibres controlled by the left cerebral hemisphere, and vice-versa. The functional differences in the two hands are connected with differences in the two hemispheres—and these are not of weight or

blood supply, but of convolutional development. Study of the speech centre in Broca's convolution has greatly illuminated the subject of right-handedness; for damage to this convolution in the left hemisphere deprives the right-handed man of speech, which is unimpaired in the left-handed man under the same circumstances. The left-handed man would suffer in the same way were the lesion on the right side. Here there is cerebral one-sidedness, assuredly not due to use and wont, or to any acquired habit or mechanical advantage. But the hand and arm centres in the brain are intimately linked with speech centres; and we must perforce infer that the preferential use of the right member in voluntary movements is also due to the leading part taken by the left hemisphere.

We would amend the conclusions of Browne by substituting for right-handedness the term single-handedness. There are some among us who are most proficient with the left hand rather than with the right; nor are they either uncivilized or microcephalic idiots. In their case it simply means that the controlling centres are on the right of the brain, and not on the left side. Otherwise we rather agree that "ambidextral culture, useful enough in respect of some few special movements in some few specially employed persons, must on the large scale tend to confusion; and pushed toward that consummation which its ardent apostles have said is so devoutly to be wished for, when the two hands would be able to write on two different subjects at the same time, it must involve the enormous enlargement of our already overgrown lunatic asylums."

WE EAT TOO MUCH.

IN a most valuable book,* Prof. H. Chittenden, of Yale, develops this thesis, which he maintains as the result of very scientific studies during six years past. We all eat too much, especially too much meat—is the conclusion to which he has arrived. And his book is all the more valuable because of the common sense which pervades it from end to end. He would not have us faddists. He advocates no peculiar system, such as Fletcherism (however much merit there is in that); or vegetarianism, although some people certainly do thrive best on a vegetable diet; or the system of the "fruit and nut" enthusiasts; or of eaters of only lean meat and the whites of eggs, such as are the followers of the late Dr. Salisbury. He would teach us how best to maintain the organism in a state of health and strength—and that with the least expenditure of time, attention and energy.

Chittenden finds that our dietetic standards are al-

together too high; that overeating causes many needless maladies; and that incalculable energy is wasted by our bodies in getting rid of a surplus of useless food. We particularly commend this observation to those physicians who are "overfeeding" their cases of tuberculosis. Surely the consumptive is almost always greatly in need of the maximum of nutritious diet; he should eat every mouthful he can digest. But superalimentation is a mistake. Not only is the system unable to use any more food than it can metabolize; but worse than this, as Chittenden shows, the system already grievously impaired by disease must in addition waste its forces in getting rid of food which it cannot assimilate.

Chittenden adheres to the established division of food into proteids (nitrogenous elements), carbohydrates and fats; and it is the first of these which he declares should be especially reduced in our food—at least one-half. He offers the following hint to aid the average man toward forming his own dietary: For breakfast, one shredded wheat biscuit, one teacup cream, one German water roll, two one-inch cubes of butter, three-fourths cup of coffee, one lump of sugar; for lunch, one teacup chicken soup, one Parker House roll, two one-inch cubes of butter, one slice lean bacon, one small baked potato, one rice croquette, two ounces maple syrup, one cup of tea, with one slice lemon, one lump of sugar; for dinner, one teacup cream of corn soup, one Parker House roll, one-inch cube of butter, one small lamb chop broiled, one teacup of mashed potatoes, apple, celery, lettuce salad with mayonnaise dressing, one Boston cracker split, one half-inch cube American cheese, one-half teacup of bread pudding, one demi-tasse coffee, one lump of sugar. Such a dietary would make the grand total for the day 58.07 grains of proteid and 2,729 calories.

LES DEMIFOUS.

IN an excellent work having this title Prof. J. Grasset, of the University of Montpellier in France, would consider the status of the half insane. He would not, as is generally done, separate humankind into two main divisions, the sane and the insane. He would observe gradations between those whose psychism is normal and the hopelessly idiotic. According to him the demi-fous differs from the sane in suffering some mental affliction; from the insane in that he preserves a certain degree of reason, and except in certain directions, may be depended upon for normal thinking. The practical point about Grasset's excellent work is that he has endeavored to establish the responsibility or the semi-responsibility of the half-insane to society and before the law.

* The Nutrition of Man. E. A. Stokes Co.

The question of the insane, he rightly declares, has certainly not been solved, though it has been before us for a long time. Society recognizes its duties and its rights in dealing with the insane, although it has not adequately defined them. The law recognizes the existence of the insane. We acknowledge that we must, while guarding ourselves against their misdeeds, assist and succor them. Their irresponsibility is recognized in the courts; allowance is made for them in verdicts; they have their place in our social organization.

But this is not true of the demifous—the half insane. Yet they are not less numerous nor less a hindrance to civilization. They exist to-day, as they have always existed; they pass us on the streets; sometimes they are in our homes; some among them we account our friends (and who are more in need of friendliness than they); "everybody knows them, yet no place is assigned them in the organization which we have at present." Prof. Grasset well maintains that their existence should be more definitely recognized than it is now. And one of the most interesting parts of his book is entitled "The Demifous Before the Law. Semi-Responsibility. Limited Responsibility and Attenuated Responsibility."

Provision recognizing limited or partial responsibility has indeed found place in Continental jurisprudence; but not at all in American or British courts. Du Jaulle, states Dr. Allen McLane Hamilton, insists upon the presentation of this as a defense especially in hysteria and where the psychosis do not imply the total destruction of the ethical sense through disease. In Berlin von Liszt has advised that if a person is declared not guilty because of irresponsibility, or if the full penalty is not imposed because of diminished responsibility, the court should fix a provisional detention and settle a guardianship. He believes that diminished responsibility without danger to the community demands a lesser degree of punishment; that where under such circumstances there is danger to the community, mild punishment and detention should be demanded. If in the latter case a person is fit to be punished, the penalty is inflicted and the detention interrupted; if, on the other hand, the prisoner should not be punished detention is resorted to at once and punishment is deferred.

THE MEDICAL SCHOOL INSPECTOR.

A MOST beneficent work, and one worthy of imitation in all the cities in our land—nay, in all civilization—has been detailed by Dr. John J. Cronin in the *Review of Reviews* for April. The Health Department corps of Medical School Inspectors was organized in 1897, and was enlarged in 1901, when a body of trained nurses was added, and the daily visits

of these physicians and nurses were supplemented by weekly physical examinations of all the classes. The results have been carefully tabulated; and we present here some of the data obtained, believing they will more than interest—that they will astonish the reader:

Of 92,240 children examined about 65 per cent. needed some form of medical care. About 30 per cent. (30,958 children) suffered errors of refraction. A still larger percentage had bad teeth. Almost as many had enlarged cervical glands, indicating some abnormal bodily condition. Some twenty per cent. had hypertrophied tonsils which so often induce oxygen starvation, tonsillitis and diphtheria. Nearly ten thousand of these children had adenoids, which, as Dr. Cronin truly observes, "predispose to affections of the ears, the nose and the lungs, and which interfere most seriously with the child's general health and mental development."

Whenever any abnormality has been found in a child, the parents have been notified by cards setting forth the defects found; and the resulting improvement in physical conditions has been marked. Some 8,000 children have been fitted with glasses, "and the subsequent improvement in their school standing has gratified principals and teachers." And many operations upon unhealthy throat conditions have been done producing a considerable contrast "between gaping, listless expressions and brightened countenances." We applaud this work, which has progressed superbly under the masterful conduct of Dr. Cronin. We would observe that for the correction of these abnormalities, which are pointed out by the doctors detailed by him to school work, the parents of the children must be held primarily responsible. This observation seems essential in the light of much strenuous talk now to be heard to the effect that the taxpayers should provide free eyeglasses, free meals, free operations and free what not else for the public school children. Here is paternalism run riot; and this is for the body politic a most dangerous thing.

A most vital part of Dr. Cronin's paper relates that in the special classes for backward children, 95 per cent. had adenoid growths. Among 83 truants examined 87 per cent. had physical defects, mostly remediable. It would seem, from the records of the Children's Courts of this city and of Chicago that 85 per cent. of youthful criminals are physically defective. Children who leave school early and become "wage slaves" are uniformly of the defective class, actual poverty being the cause of their seeking employment "in but a very small proportion of cases." Evidently then abnormal physical conditions are at the bottom of much that is immoral, and perhaps even criminal, in many perverse children.

ECTOPIC GESTATION.

Hirst finds breech presentations to occur in from 1.3 to 3 per cent. of all labors. Formad¹ found 35 ectopic gestations in a series of 3,500 general autopsies. This latter percentage is much more frequent than has generally been presumed; no doubt many of the deaths formerly assigned to idiopathic peritonitis and to hematocele were due to ectopic pregnancies, which seem really to be not much less frequent than breech presentations. And, of course, they are much more dangerous to the mother. No physician would consider himself qualified to practice midwifery who would not be proficient in the management of breech labors; the ability at least to diagnose tubal pregnancies is even more essential. This is in reality not difficult. It is made to-day much more frequently than formerly, because we are now more on the lookout for it. Childe² particularly advises that in every case in which symptoms suggestive of abortion present themselves, ectopic pregnancy should be either excluded or confirmed.

The signs and symptoms of ordinary pregnancy may, upon examination, all be present, or present only in part; or they may be entirely wanting. We may find nausea, sensitive breasts and the softened cervix. There may be amenorrhœa; a skipped or lost period is very suggestive; in half the cases the menses are irregular; in many, on the other hand, there is no menstrual irregularity; the changes may be in the character and relative amount of the flow, or in the exact duration of the days; the bleeding may be profuse, or intermittent, or merely spotting; the discharge may be dark or brownish colored and followed by pain; it may contain debris, in which may be found the decidual tissue which forms in the uterus coincidentally with the tubal pregnancy. By the microscope we must exclude membranous dysmenorrhœa, if we find chorionic villi in the membrane the gestation is uterine—otherwise it is tubal. Yet here Steffenson³ reports coincident normal and ectopic pregnancies in 150 cases. Many women present a history of previous sterility; they have been sterile so long that their attention has been diverted from a possible pregnancy.

The patient may complain of pain on one side on exertion, or after micturition or defecation; this may also be induced by coitus, or even by coughing or sneezing. There may be "cramps" in the lower part of the abdomen. On examination a distended, boggy, markedly vascular tube may be felt at the side of or behind the uterus, which organ is, in most cases, enlarged and displaced in various directions. The womb may be fixed by adhesion to the tubal growth, or its location may be influenced by change in the volume of the bladder or rectal contents. The diagnosis can, with the aid of the history, generally be made, from other pelvic tumors, hydro or hematosalpinx, hematoma, hematocele, infectious processes and malignant neoplasms. Immediately it is made laparotomy should be resorted to. Martin has found 36.9 per cent. of recoveries

¹ American Text-book of Gynecology.

² Childe (C. P.); Suptured Ectopic Gestation. Practitioner, April, 1907.

³ Steffenson (O. M.); Ectopic Pregnancy. Am. Jour. Surg. and Gynec., April, 1907.

under expectant treatment; 76.7 per cent. under operation.

Rupture is rarely deferred beyond the tenth to the twelfth week. A sudden, excruciating pain on one side of the perhaps distended abdomen; a cold, clammy sweat; cardiac depression, and "air hunger"; a rapid and feeble pulse, a subnormal temperature; vomiting and nausea; a pale face; faintness, unconsciousness or complete collapse—these symptoms may indicate a tubal rupture, either intra or extraperitoneal, with probably a menorrhagia, due to the separation of the uterine decidua. Under such circumstances "immediate operation is almost universally the only line of safety."

OUR BROTHER, THE DENTIST.

Not so very many years ago the calling of the dentist was considered a business rather than a profession. Their work was extractive and destructive and only a few pioneers sought to preserve and even to construct serviceable grinders. But to-day all that is changed. Dentistry is to-day decidedly a science and a profession, and one much more essential to healthy living than it is generally given credit for. Many a systemic infection has resulted from decayed teeth, the cavities of which make excellent foci for germ propagation. In the case of a citizen from the West, some twenty-six varieties of bacteria were found in a particularly malodorous buccal cavity. And the proper chewing of food, which is so essential to normal living, is of course, impossible unless the teeth are sound. Particularly in sufferers from tuberculosis, whose restoration to health depends upon proper alimentation, one can expect little good results when the teeth and their alveoli are in pathological condition. Again, in trigeminal neuralgia, the dentist and the physician must often unite in treatment.

Unquestionably dentistry is a very essential factor in modern civilization; and it is in this country, where the science and art has reached its highest development, that its dignity should be recognized. It is unfortunate that medicine and dentistry have, in a way, become separated; the former should, at any rate, be recognized and established as a special branch of the healing art. We regret to note that they have stolen a march on us in England. According to the *London Globe*, "the dentist and his profession have now been raised to the level of Aesculapius and his art, a consummation celebrated by a jubilee dinner of the Odontological Society," which had accepted the invitation to become an integral part of the Academy of Medicine.

LIQUID GLASS INK AND MOUNTING MEDIUM.

1. Liquid glass ink, for writing on glass and porcelain.

While labels and certain soft pencils may be used for labeling glass slides, bottles, &c., the former are likely to come off or to become dirty, and the latter make a very unsatisfactory mark. Ordinary so-called inks for writing on glass consist of suspensions of some soft, fine, insoluble powder, such as zinc oxid or lead oxid, the medium being either a solution of shellac in wood alcohol or dilute hydrofluoric acid. Neither of these is satisfactory, the latter leaving

a permanent scratch, while both soon become quite legible, and both are very liable to fail to adhere, and then to leave a large blot.

Acting on a hint derived from an unknown original source, the writer has found that ordinary soluble glass will dissolve eosin and similar dyes, making an ink that can be applied to glass surfaces with an ordinary pen and that dries rapidly. While not strictly waterproof, such ink resists an occasional flooding with water. If the ink dries, it can easily be redissolved with a little hot water, and the pen can be cleaned in the same way.

2. Soluble glass also may be used instead of balsam in attaching blood mounts to glass slides. It dries quickly, and no particular pains is necessary to secure preliminary dryness of slide and cover. The writer has, thus far, not succeeded in combining stain and mounting material, as the glass precipitates with the Jenner and allied blood stains.

A. L. BENEDICT.

The College of Physicians and Surgeons celebrated the one hundredth anniversary of its founding in June last. The extensive laboratories and museums at the college in 59th street were inspected, as also the clinics of the New York and Roosevelt Hospitals and other institutions in which the faculty are interested. President Nicholas Murray Butler, of Columbia University, Dr. John S. Curtis, the Professor of Physiology, and Dr. W. H. Welsh, of Johns Hopkins, made memorable addresses. The first lectures on medicine in King's College were given in a course on anatomy, delivered by Dr. Samuel Clossy, a graduate of Trinity College, Dublin, in 1763. Four years later he, with five colleagues, laid before the governors of King's College a proposal to institute within the college a medical school; and they offered to give courses of lectures in the essentials of medicine. The board thereupon voted to establish the school, and to appoint these six physicians as the first medical professors. Thus was founded the second school of medicine in the New World, only two years after the founding of the College of Philadelphia, the forerunner of the University of Pennsylvania. When King's College, under the name of Columbia College, was reopened in 1784, after the Revolutionary War, a new medical faculty was appointed. Eight years later the school was reorganized; and for a score of years it struggled on with few students. Meanwhile the College of Physicians and Surgeons was organized; and in 1813 the Columbia school was transferred to its newer and more successful rival. From that time until shortly before the Civil War, when the College of Physicians and Surgeons came under the aegis of Columbia, no medical instruction was given at the latter institution.

The Fees Are Little Enough.—The physicians of Elmer, New Jersey, have mutually arranged a schedule of rates for visits and medicines furnished, which are doubled for night calls. The charge for local visits is to be one dollar, with additions when more than three miles must be traversed. There are also extra charges when medicine is left for more than one member of the family visited; and we hope that the additional advice is also compensated for.

BIBLIOGRAPHICAL

Foods and Their Adulteration. Origin, manufacture, and composition of food products; description of common adulterations, food standards, and national food laws and regulations. By Harvey W. Wiley, M.D., Ph.D. With eleven colored plates and eighty-six other illustrations. Octavo, 625 pages. \$4.00. Philadelphia: P. Blakiston's Son & Co., 1907.

This manual gives information regarding various food-products in their natural and manufactured conditions, methods of preparation, nutritive values, standards of purity, regulations for inspection, simple tests for adulterations, effects of storage and other matters of practical general interest.

It is intended to interest the consumer, as well as the manufacturer, the scientific, as well as the general reader, and all are sure to find something useful in its perusal.

The physician, the sanitarian and the chemist may obtain important and useful information to guide them in their work.

There are extracts from the national laws relating to this subject, as well as the rules and regulations for their enforcement and official standards of purity of interest to all classes.

The author has done his work in an honest, truthful manner, in the interest of justice to all, and in behalf of proper ethics and the "square deal."

It is intended to be used in conjunction with works on dietetics and on physiology and hygiene, and yet of a character not especially designed for the expert.

The text is expressed in concise, simple language, in a form easily consulted, and gives full and reliable information, even to the intelligent and scientific cook.

The book will not be out of place in any household, and its cost is within the reach of all.

Morris's Human Anatomy. A complete systematic treatise by English and American Authors, Edited by Henry Morris, M. A., and M. B. Lond., F.R.C.S., Eng., President of the Royal College of Surgeons of England, etc., and J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy, University of Michigan, etc. Ten hundred and twenty-five illustrations, three hundred and nineteen printed in colors. Fourth edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1907.

This is an Americanized fourth edition of a great work, rewritten and revised.

It is published in one handsome octavo volume, in cloth, at \$6, or in five parts, properly divided, and which are sold separately, the price depending on the size of the volume, for the whole number, \$7.50. This division into parts will be found a great convenience to students, the single volume being too bulky for class-room work. As a book for reference, the binding in one volume will be more handy.

The entire text has undergone a complete revision, some sections have been entirely rewritten and enlarged, and the whole brought thoroughly up to date. The illustrations, too, have been thoroughly revised to accord with the text. The practical method of describing illustrations by different types as heretofore used, has been retained.

In order to assist in the unification of anatomical ter-

minology the Basle nomenclature has been used. This is the first text-book of anatomy in English to adopt the B. N. A. in its entirety.

The profession ought to appreciate the great labor involved on the part of all concerned, in such an undertaking. It is difficult to conceive how the editors can thread their way through such a mass of detail or understand the great amount of thoughtful and painstaking care which the writers must exercise in reducing their knowledge to the clear, exact, and concise form so necessary to intelligent understanding.

The work is a complete and systematic description of every part and organ of the human body so far as it is studied in the dissecting room.

The different sections have been written by separate authors, who are known to have specialized in the subjects allotted to them, and the result is a stupendous and most perfect work.

The book is commended to the student of anatomy with confidence. The publishers are also entitled to our appreciation of their efforts which have made the publication possible in such superb physical dress.

The Medical Epitome Series. Diseases of the Nose and Throat. By J. Bruce Ferguson, M.D., Instructor in Diseases of the Nose and Throat in the Postgraduate Medical School and Hospital, New York. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. 243, 12mo.

The character and object of these little books is well known, and this is one of the best. The post-graduate student, and even the general practitioner, as well as the undergraduate will find the work an acceptable reference book.

The text gives in brief, clear and concise form the chief points in the diagnosis and treatment of diseases of the nose and throat.

In order to render the volume suitable for quizzing, and yet preserve the continuity of the text unbroken, the questions are placed at the end of each chapter. No student can get along without a book of this kind.

Introduction to Infectious and Parasitic Diseases, including their Cause and Manner of Transmission. By Millard Langfeld, A.B., M.B., (Johns Hopkins), Professor of Bacteriology and Clinical Medicine. John A. Creighton Medical College, Omaha, Neb., etc., with an Introduction by Lewellys F. Barker, Professor of Medicine at the Johns Hopkins University. With thirty-three illustrations. Philadelphia. P. Blakiston's Son & Co., 1907. Pp. 260, 12mo. \$1.25.

This little volume is intended as an introduction to the subject of bacteriology, and naturally the work has been done in as simple and clear a manner as possible, avoiding the use of terms and the discussion of questions which would be unintelligible to beginners.

The book is recommended by Professor Barker, which ought to be sufficient. We have no hesitation in commending it to those for whom it is intended.

Manual of Operative Surgery. By John Fairbairn Bonnie, A.M., C.M. (Aberdeen), Professor of Surgery, Kansas State University, Kansas City; Fellow of the American Surgical Association, etc. Third edition, revised and enlarged. With 678 illustrations, a number of which are printed in colors. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 743, large 12mo.

The rapidity with which the editions of this little volume have been exhausted shows the appreciation in which it is held by the profession. It certainly fills the place for which it was intended in an excellent manner. The author describes in a practical way operative procedures as they are done on the living subject, instead of on the normal cadaver.

The present edition has been revised and enlarged by ninety-five pages of text, and one hundred and eleven new illustrations. A better book for ready reference could not be asked for.

The Principles and Practice of Dermatology, designed for Students and Practitioners. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois; Dermatologist to St. Luke's and Cook County Hospitals, Chicago, etc. With one colored plate and three hundred and sixty-seven text illustrations. New York and London: D. Appleton & Company, 1907. Octavo, pp. 1021. Price, \$6.00.

The author presents in this work comprehensively, but as concisely as practicable, a reflex of current dermatological knowledge fully to date.

In order to make the subject interesting, unusual space is devoted to the fundamental principles, including treatment, both special and general.

The text is well stated and practically illustrated for the purposes of the student and the practitioner, to whom we commend it.

The illustrations are almost equal to viewing the subjects in the clinique. Medicine is advancing so rapidly in all its departments that it becomes necessary to possess the latest books on all subjects in order to keep abreast the times.

Diagnostics of Diseases of Children. By LeGrand Kerr, M.D., Professor of Diseases of Children at the Brooklyn Postgraduate Medical School. Octavo of 542 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$5.00 net; Half morocco, \$6.50 net.

This volume adds another to the important subject of differential diagnosis. In the diseases of children, the diagnosis is confined largely to the objective symptoms of disease and their correct interpretation is of absolute importance. It has been the aim of the author to present a work which would enable the practitioner to recognize disease early in its occurrence, without the aid of subjective symptoms. In order to do this outside of the clinique he has made use of a large number of illustrations which answer an excellent purpose.

Etiology and pathology have been introduced only so far as they will be useful in diagnosis, and the sequelae are considered in their relation to possible dangers.

The work is eminently practical and will be found of great service for its purpose.

Surgical Diagnosis. By Daniel N. Eisendrath, M.D., Adjunct Professor of Surgery in the Medical Department of the University of Illinois (College of Physicians and Surgeons). Octavo of 775 pages, with 482 original illustrations, 15 in colors. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$6.50 net; Half morocco, \$8.00 net.

The importance of correct diagnosis as early as possible cannot be overestimated. The subject in this treatise has been approached chiefly from the clinical standpoint, as it should be. The classification and

grouping of conditions has been done in the interest of the reader, so that he may see the clinical picture as he encounters it at the bedside with the least possible trouble.

The importance of differentiation of affections which simulate each other, has been constantly kept in view, a point of great value in daily practice.

Proper attention has been given systematically and comprehensively to the description of methods of examination, with suitable original illustrations where possible.

There is a large number of original illustrations of clinical cases and specimens which will be found of great service.

For the purpose of differential diagnosis the work is unqualifiedly commended.

Modern Surgery: General and Operative. By J. Chalmers Da Costa, M.D., Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College, Philadelphia. Fifth Revised Edition, Enlarged and Reset. Octavo volume of 1283 pages, with 872 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$5.50 net; half morocco, \$7.00 net.

The present edition of this classical work shows so many changes and additions that it seems almost like a new work, but it all seems necessary in order to keep abreast the times.

The author presents here in clear terms and in concise form the fundamental principles, the chief operations and the accepted methods of up to date surgery. The work stands between the complete but bulky textbook and the incomplete compend. It is of handy size for use, and contains what is required for the general purposes of the student and the busy practitioner. It occupies a position in the very front rank of its class, and our readers may have no hesitation in ordering a copy, upon this recommendation. ff

The fact that the book has reached a fifth edition is sufficient evidence of the esteem in which it is held by the profession.

A Manual of Personal Hygiene: Proper Living upon a Physiologic Basis. By Eminent Specialists. Edited by Walter L. Pyle, M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Third Revised Edition. 12mo of 451 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$1.50 net.

This popular manual has been thoroughly revised and numerous additions made, including an illustrated system of Home Gymnastics, a chapter on Domestic Hygiene, and an Appendix containing the simpler methods of hydrotherapy, thermotherapy, and mechanotherapy, and a section on First Aid in medical and surgical accidents and emergencies.

There seems to be an increasing desire to know how to live properly upon a physiologic basis, and this book supplies the demand. Its usefulness is not confined to medical readers, but it may be commended to any intelligent person.

The Care of the Baby. By J. P. Crozier Griffith, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania. Fourth Revised Edition. 12mo of 455 pages, illus-

trated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$1.50 net.

No more important book can be written than a manual for mothers and nurses, containing practical directions for the management of infancy and childhood in health and in disease. Judging by the manner in which the editions are consumed, we should say Dr. Griffith's book has met a great demand.

It is a safe book to place in the hands of any one who may have to do with the care of the baby.

A Manual of the Diagnosis and Treatment of the Diseases of the Eye. By Edward Jackson, M.D., Professor of Ophthalmology in the University of Colorado. Second Revised Edition. 12mo of 615 pages, with 182 text-illustrations and 2 colored plates. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$2.50 net.

The author intended this book for the general practitioner and for the beginner in Ophthalmology. He designed it to aid in the practical work likely to be presented to the newly fledged practitioner, with a view to opening the way to broader study.

In his second edition he has found it necessary to make many changes in description and additional consideration of diseases and methods of treatment. The author is conservative, does not run after fads, and his work can be depended upon as reliable and trustworthy, and should be commended for its purpose.

Atlas and Epitome of Diseases of Children. By Dr. R. Hecker and Dr. J. Trumpp, of Munich. Edited, with additions, by Isaac A. Abt, M.D., Assistant Professor of the Diseases of Children in Rush Medical College, in affiliation with the University of Chicago. With 48 colored plates, 147 black and white illustrations, and 453 pages of text. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$5.00 net.

The text of this volume forms a manual of Pediatrics in small compass. The plates are very life-like and, as in the other volumes of "Saunders' Hand-Atlases," accurately portray the conditions they are intended to represent. Many changes have been made in the therapeutic portion in order to make it accord with the practice in this country.

The pictorial illustrations provided by this book will to a great extent take the place of clinical observation, which is not the case with the current text-books.

The student and the general practitioner will find these atlases of inestimable value.

The American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M.D., editor Revised Edition. 32mo of 574 pages. Philadelphia and London: W. B. Saunders Company, 1906. Flexible morocco, gold edges, \$1.00 net; thumb indexed, \$1.25 net.

The increasing demand for this useful little book enables the editor to keep fully abreast the continuous advance of medical literature. In the present edition the text has been carefully revised and a large number of new words have been added, many of which are of the very latest coinage, and are not as yet to be found in any similar publication.

By repeated revision and improvement this work will meet more fully the needs of its rapidly increasing readers.

Lateral Curvature of the Spine and Round Shoulders. By Robert W. Lovett, M.D. Associate Surgeon to the Children's Hospital, Boston; Surgeon to the Infants' Hospital; Instructor in Orthopedic Surgery, Harvard Medical School, etc. With 154 illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Octavo, pp. 188. Price, \$1.75.

The author has brought together the literature and added his own views and experience, upon a subject which formerly received little attention. In the last decade considerable progress has been made along new and promising lines, by means of experimental and clinical work.

There is urgent need of such a book on the part of students, practitioners and teachers of physical training.

That the work may be eminently practical, the author has devoted much space to the treatment, and his text is so fully illustrated with excellent pictures, that one need not see the patient to understand the lesion.

Clinical Lectures on Neurasthenia. By Thomas D. Savill, M.D., London. Physician to the West End Hospital for Diseases of the Nervous System, London, and to the St. John's Hospital for Diseases of the Skin, etc. Third (revised and enlarged) edition. New York: William Wood & Company, 1907. Octavo, pp. 216. Price, \$1.50.

In the present edition of this most practical and useful book many fresh data and illustrated cases have been added, and the bibliography brought to date, a great convenience to those who desire to study the subject from the original sources.

The author recognizes the fact that many morbid conditions may cause neurasthenia, and their solution is of the highest importance for successful treatment.

The analysis of 103 private cases shows that about 80 per cent. of them were due to some kind of auto-intoxication (toxæmia). A preponderance of intestinal and gastric causes are shown, differential diagnosis is given, and the directions for treatment are elaborate and to the point.

We commend this work to those of our readers as want to fully understand this obscure subject.

The Practitioner's Library of Gynecology, Obstetrics and Pediatrics, in original contributions, by eminent American and English authors. *The Practice of Gynecology*—Edited by J. Wesley Bovée, A.M., M.D., Professor of Clinical Gynecology in the George Washington University, Washington, D. C. Large octavo, 836 pages, with 382 engravings and 60 full-page plates in colors and monochrome. *The Practice of Obstetrics*—Edited by Reuben Peterson, A.B., M.D., Professor of Obstetrics and Diseases of Women in the University of Michigan, Department of Medicine and Surgery, Ann Arbor, Mich. Large octavo, 1087 pages, with 523 engravings and 30 full-page plates in colors and monochrome. *The Practice of Pediatrics*—Edited by Walter Lester Carr, M.D., Consulting Physician to the French Hospital; Visiting Physician Infants' and Children's Hospital, New York. Large octavo, 1014 pages, with 199 engravings and 32 full-page plates in colors and monochrome. Price per single volume, cloth, \$6.00; leather, \$7.00; half morocco, \$8.00. Price for any two volumes, cloth, \$11.00;

leather, \$13.00; half morocco, \$15.00. Price for the three volumes, cloth, \$15.00; leather, \$18.00; half morocco, \$21.00. Philadelphia and New York: Lea Brothers & Co., 1907.

The work on Obstetrics is the last to appear, and, like its companions, is designed for the general practitioner and is eminently practical.

Its contributors are men of experience and standing in the profession, and their work may be considered authoritative.

The simplest and most logical arrangement of the text has been adopted and especial attention has been paid to the important matter of its illustration.

In preparing this new series the object has been to cover the whole domain composed of three cognate major specialties. Eminent American and English authors have united under most able editorship. By excluding those features of disease which are properly to be sought in works on general medicine these volumes find space for a complete and comprehensive presentation of their respective subjects, with full practical details. Together with the most advanced knowledge of established value the authors have included their own observations, and the therapeutic measures which have resulted in the greatest success. This adds a personal element of obvious value. Abundant engravings and full-page plates illuminate the text, the facilities at command of the editors having enabled them to secure photographs and drawings exhibiting any point desired. Though it is manifestly to the advantage of every physician to have the whole library at hand, the volumes are sold separately for the convenience of those interested in the individual departments.

RETROSPECTIVE

The Commoner Disabilities of the Foot.—J. F. Fiske, in a valuable paper (*N. Y. Med. Jour.*, Feb'y 23, '07), considers the various painful conditions and disabilities which are likely to occur in general practice. When a patient complains of a pain in the foot the last thing to think of is rheumatism; and the first thing to do is to examine the feet. One must note the general contour, the presence or absence of swelling, any possible deformity or thickening, painful areas, the condition of both the greater and the anterior arches, of the tendons and especially of the achillis bursa, the amount of dorsal and plantar flexion, the degree of adduction or inversion, and of abduction or pronation. The position while standing and the gait should be noted; both feet should be compared.

We must bear in mind the functions of the foot: the weight bearing function, dependent on the integrity of bones and ligaments combined with proper muscular activity, and the walking function, consisting of the elevation of the body, its propulsion forward, combined with a proper amount of elasticity, this latter depending upon an absence of muscular rigidity and normal freedom of motion. The position of the weight-bearing line—normally extending through the patella, along the tibial crest and through the second toe, should be noted; in the weak and pronated foot this line drops to the inner side of the second toe.

Achillodynia or Albert's disease is a not uncommon inflammation (either acute, subacute or chronic) of the bursa situated between the lower end of the tendo and the os calcis. There may be a history of standing for long periods, or of gonorrhoea. There is usually diminished dorsal flexion; some care or awkwardness in placing the foot on the ground; and localized pain and thickening. Sometimes a very careful examination is necessary to locate the condition. If untreated it will very likely go on to a truly weak foot, either a pes planus or valgus. We must apply the cautery, strap, massage; and perhaps even excise. Rubber heels are of value. The *everted foot* has gradually been thrown or displaced outwards. The greater arch is here often fair, and may be practically intact. The condition is really one of simple valgus. The foot generally of young girls is weak because of improper walking and standing, in unsuitable shoes, especially of the high-heeled sort. Some cases follow a neglected sprained ankle. There is diminished dorsal flexion, though in mild and early cases we can throw the foot in the position of inversion. There is some pain, perhaps just below the external malleolus, due to pressure at this point. Sometimes pain is absent. There may be some muscular spasm or rigidity. We must manipulate the foot daily so as to place it in extreme inversion. Proper orthopedic shoes must be worn, the soles of which should be raised a little along the inner border to maintain the position of inversion. The heels should be low and broad. The patient must be taught to walk and stand properly; exercises must be instituted to strengthen weakened muscles.

Hallux valgus, an outward displacement of the greater toe, is almost always the result of wearing narrow or pointed or short shoes. In long standing cases the deformity may be extreme, the toe will be displaced outwards, and an exostosis, usually surmounted by a bunion, will form on the inner aspect of the first metatarsal bone. In severe cases a uniform osteotomy is required. In milder cases proper shoes and stockings, with passive motion to induce a normal range of movement, are indicated.

Hammer Toe, resulting from short shoes and usually affecting the second toe, consists essentially in dorsiflexion of the proximal phalanx and in plantar flexion of the second phalanx. Sometimes the lower zone of lateral ligaments becomes contracted as well as the plantar plate. Section of these ligaments, with manipulation, will generally affect a cure; sometimes the elevated joint must be resected.

Painful heel is especially common among those who walk our city streets. It may follow a slight jar or misstep, as in alighting suddenly from a trolley car. It may be due to a deep-seated bursa, or to a periostitis at the plantar aspect of the os calcis. Rubber heels are indicated. If the painful heel is secondary to achillodynia or to a weakened arch, the shoe should be supported on the inner side to hold the arch and correct the tread.

Metatarsalgia or Morton's Disease, is a sinking of the anterior or transverse arch, often the result of weakness, due to standing with improper shoes, though this is not always the cause. The disability is often great and the pain severe—located at the

proximity of the fourth metatarsal phalangeal joint. The pain is due to pressure and displacement of the arch. Support and strapping are required, with later a shoe so constructed as to support the anterior arch.

The various neuralgias and forms of osteoarthritis are due oftentimes to exposure to cold, wet feet, poor circulation, and maybe gouty conditions. In these cases attention to circulation, proper clothing, combined with the administration of rhubarb, soda and the salicylates are the therapeutics indicated. We must refer the reader to the paper itself for Fiske's important observations on *True Flatfoot*, the *Proximal Foot Following Pott's Fracture*, and *Fracture of the base of the Fifth Metatarsal Bone*.

In all abnormal conditions we must base the treatment on a study of the physiological functions of the foot and of its anatomy. Deformity must be corrected, first of all. We then, by systematic manipulations, try to restore a full range of motion. Then we require proper footwear (despite feminine vanity, etc.), and instruct the patient how to stand and to walk. By exercise we develop weakened muscles and elevate and strengthen the arch. A proper walking shoe is laced, made straight on its inner edge, having a slight extension sole, fitting well about instep and ankle, so built forward as to give free play to all the toes, and broad enough to permit the forward part of the foot to expand in walking. The heel must be of good width and low; the sole quite flat. A high-heeled shoe is dangerous and bad. Whenever we have to consider painful and weak conditions we must also call attention to the proper way to walk, and the proper position to assume in standing. Standing with toes pointing outward is a position of weakness; the arch is thus lowered and "splay foot" results. With toes pointed slightly inward is a position of strength; the arch is thus elevated and all the structures are then securely held. We should walk with the feet kept parallel "and at times it is well to walk with toes slightly turned in." The foot is thus held in position of strength, the leverage is more perfect and the weight bearing line is true. Those especially who stand constantly in their work should develop proper foot action.

Fletcherism Scientifically Endorsed. Dr. L. F. Barker, of Johns Hopkins, commends mastication until the food is practically dissolved before swallowing. By this means, it seems, the fat grow thin, and the thin attain normal avoirdupois. The obese usually grow fat through overeating. But by means of Fletcherism, the modern term for fine chewing, the appetites of the obese are satisfied with far less food than they have been in the habit of eating, with corresponding loss in weight. The thin, on the other hand, are apt to bolt their food and suffer indigestion in consequence. Under Fletcherism they eat less food; but they chew it well and so gain weight.

The Bacteriology of Acute Articular Rheumatism.—L. A. Conner in reviewing this important subject concludes that acute rheumatism is a specific infectious disease, and not merely an attenuated pyemia resulting from the common pyogenic organisms; that the bacillus of Achalmé has no etiological relation to it; and that while there is much evidence in favor of

the view that the disease is caused by a specific diplococcus or streptococcus, positive proofs of the specificity and identity of this organism and of its causal relation to rheumatism are still lacking.

We have advanced since the days of Sydenham, as may be judged from the following: A comb made of the right horn of a ram will cure a right-sided headache; that on the left side will be cured by a comb made of the left horn of the ram.

The cough is easily cured if the sufferer spit three or four times into a frog's mouth; but it must be into the mouth of the same frog.

Painless dentistry is effected by filling an earthen crucible full of ants, eggs and all, and when you have burned them, keep the ashes, with which if you touch a tooth it will drop out.

Having marked where a swine rubs himself, cut off a piece of the wood and rub any swollen part with it, and it will help it, with this proviso, that where the hog rubs his head it helps the swelling of the head, and where the neck, that of the neck, etc.

Shave the crown of the head of one that is sick and lay upon the shaved place rhue stamped with oil of roses, binding it on, and if the party sneeze within six hours after he will live; else not.

The teeth should be examined carefully in all gastric disorders before beginning treatment. Sometimes medication fails to relieve dyspepsias attended by eructations, abdominal distension, painful sensations of fullness, pyrosis, congestion of the face, vertigo, somnolence, loss of flesh, anorexia, and putty colored skin. Oftentimes such patients have soft, decalcified and decayed teeth; there may be dental abscesses, eroded teeth, bad roots, fistulæ and very offensive breaths. Curtis (quoted by Lebaupin, *Bull. gener. de Therap.*, July 15, '06) finds that colitis, proctitis, hemorrhoids and like affections are closely related to the longitudinal lines, as also the opaque spots noticed in some are no prolonged intestinal disorders. Digestive disorders, such as occur with all intoxications, can easily be diagnosed when we know the nature of the respective poison. Sometimes an examination of the teeth will help to determine such causes. One may thus outline important prophylactic measures.

In chronic cystitis, Heaton (*Birmingham Med. Rev.*, Aug., '06) directs the simplest and blandest diet, alcohol or red meat being interdicted, as also spices, coffee, curries and condiments. Fluids may be taken freely, especially milk, barley water and linseed tea. Such old-fashioned remedies as boiled celery and blackberry tea are excellent demulcents. Among drugs Heaton finds most efficacious the fresh infusion of buchu made daily from the leaves; from one-half to two pints must be taken in the twenty-four hours. Among the urinary antiseptics cystamine in 5-7 grain doses is excellent; next come the benzoates. Local irrigation is generally essential; boroglyceride (3ii-5i) is given at a temperature of 98° to 100° F., in quantities of four ounces at a time.

The Kiss Triumphant.—An ungallant physician, hailing strangely enough from the State of Virginia, severely arraigned the kiss in one of the recent section meetings of the A. M. A. at Atlantic City. "Educated fair ones in the woman's colleges of America are kissing their lives away." This unemotional creature whose

name we in pity forbear to give, declared further that "pretty students have kissed each other good-morning, good-afternoon, and good-night until they have kissed into being some of the greatest grip and fever epidemics known in the country, and it is high time that the doctors step in and break up the kissing habit among girls, even if they can't prevent lovers from indulging in osculation." In opposition to these views a youthful and handsome delegate from the West declared amidst great applause that all the propaganda in the world could not stop the ancient and honorable pastime condemned by the Virginia physician; and we are gratified to note that a resolution calling for legal halting of "unnecessary osculation" was killed before it could be put to a vote.

Warts and dermal papillomata are treated by Brocq at the Hôpital Saint Louis by means of the electrocautery or by scraping, as the quickest and most certain method. But this is painful; and if the patient declines it, Brocq substitutes the following: Every second day the coating of salicylic collodion which has been applied two days before, is removed with ether. Then all the epithelium which has been blanched by the collodion is rubbed off by means of a flame sterilized scraper or a piece of pumice stone. After cleansing the base of the papilloma is touched carefully with nitric or preferably with glacial carboic acid. A coating of ten per cent. salicylic collodion is then applied; or a salicylic plaster of the same strength. But the collodion adheres better, especially on the hands. This procedure is repeated every two days as long as necessary. If the skin becomes inflamed the part must be covered by zinc ointment, and the treatment resumed when all inflammation has been subdued.

The Russian anatomical assistant.—Gruber, the eminent anatomist—an Austrian by birth, was forty years ago appointed professor in St. Petersburg, which position he has since filled; and a semi-public jubilee was recently celebrated in his honor. When he first took up his appointment he knew not a single word of Russian; and shortly after his installation he made of one of his alumni—a German-speaking student—the surprising request that he write upon the blackboard affixed to the lecture room wall all the most violent oaths, insulting expressions and scurrilous terms of abuse constituting the vituperative resources of the Russian idiom—a language peculiarly endowed in this respect. The alumnus having done this, states the *London Medical Times*, Gruber forthwith took to learning diligently everything chalked up for his especial edification. While he was thus engaged the president of the institution entered the room, and hearing Gruber muttering the most abhorrent language, asked why he sought to enrich his Russian vocabulary with so many unscientific terms. "It is high time," returned Gruber, "that I should learn to swear in your expressive tongue. I must acquire these words in order to let my anatomical assistants know what I think of them. For a whole week past they have got drunk every day on the spirit which I have used for my preparations."

Alcohol, the Sanction for Its Use.—Under this title the Putnams have published a very valuable contribution by Dr. Stark to the perennial discussion on the use and abuse of alcohol. Dr. Stark finds that the alcohol in beverages does not of itself possess the prop-

erty of inducing persons to take ever-increasing amounts. It should be easy for any healthy person to restrict his use of alcohol within moderate bounds. The disposition to excessive drinking has its origin in definite peculiarities and circumstances of the individuals affected, who are mentally abnormal or otherwise unfortunate. The moderate use of alcohol has nothing to do with the development of any disease whatever; such relation is certainly never made out. Alcoholic drinks, on the other hand, have a real nutritive value. The moderate use of alcohol is for many a man of the present day a very important hygienic measure. Of all our articles of food and drink alcohol is the only one that has the two important properties of abating nervous irritability and of so influencing the distribution of the blood that the skin becomes rich in that fluid and the internal organs are sparingly provided with it. In these respects its action is quite the reverse of the caffeine in coffee and tea, which exalts the excitability of the nervous system and so distributes the blood that the skin is deficient in it, with the result that the internal organs are gorged.

Score One for the Meat Eaters.—We have recently presented the case of the vegetarian, and would now note that in two districts in southern Baden only twenty out of 604 young men liable to military service were found to be up to the physical standard of the military authorities. It seems that the peasantry in those districts were at one time among the most robust in the empire, but because of the dearth of meat and the fact that milk, which once was a staple article of food, is now carefully collected for the cheese factories, their physique has shrunk to a deplorable level.

The Blood and Kidneys in Surgical Jaundice.—S. Lloyd holds (*N. Y. Med. Jour.*) that in all cases of prolonged jaundice we have, in addition to the danger of hemorrhage, to contend also with marked and generally increasing anæmia; we must therefore determine the percentage of hemoglobin and make a differential count when we are determining the coagulability of the blood. Surgical operations of any kind undertaken with a hemoglobin percentage below thirty are very serious; and if it has fallen to twenty, a fatal issue is almost certain. And kidney changes are important in considering the anæsthetic to be employed and in influencing the prognosis.

The psychic importance of ear diseases is dwelt upon by W. S. Bryant (*Jour. Nerv. and Men. Dis.*, Sept., '06), who finds that there is some connection between ear disease and hallucinations of hearing other than mere coincidence. In probably most cases hallucinations of hearing originate in subjective ear sensations. In many cases cure of the coincident ear disease cures or assists the convalescence from the psychoses. Some cases of insanity appear to be excited by ear disease and the convalescence of insane cases is delayed by the presence of ear disease. Unilateral hallucinations of hearing are certainly due to unilateral ear disease.

Laparotomized patients are allowed to get out of bed on the fifth to the ninth day after operation in Laudau's Gynecological Clinic in Berlin (*C. Hartog, Berl. Klin. Wochen.*, Jan. 7, '07). The advantages claimed are that the convalescence is more rapid;

lung complications are eliminated; the digestive functions are improved; there is less risk of thrombus or embolus formation. Boldt oftentimes has his cases up twenty-four hours after operation.

The Ingrown Toe-Nail.—The classic operations probably do not cure permanently in even a fair percentage of cases. Conservative treatment will usually accomplish as much, even in the presence of granulating masses. By this treatment the flesh is drawn away from the nail with a strip of adhesive plaster, a gauze package is inserted under the nail edge and an absolutely antiseptic dressing is applied.

A potential "suffragette" is in training at Vassar College in the person of Miss Mulholland, who has recently tossed the eight-pound shot some thirty-two feet. We are not familiar with the record in this sport; nevertheless, this feat appears to us both formidable and disconcerting. Miss Mulholland is fitting herself for woman suffrage work in England; this news will no doubt be heard with consternation in Westminster. In the hope of allaying somewhat the fear of our English brethren, we would remind them of the philosopher's observation that "the inability of woman to throw things straight is a special dispensation of Providence."

A rare path of orbital abscess infection is reported by Barck (*Archiv. of Ophthal.*, Nov., '07). A boy was hit on the temple by a stone. Two days later high temperature developed; on the third day the upper lid began to swell and on the fourth he was unable to open his eyes. The patient became comatose and delirious. Upon operation it was found that the infection from the temple wound had extended through an emissary vein into the orbit and thence to the meninges, which accounted for the symptoms manifested.

The Antituberculosis Propaganda.—A most valuable report has recently been issued by the government detailing the fight which is being made by federal and State authorities against this disease. Besides national action, twenty-nine States are seeking to control tuberculosis. Among these Pennsylvania was the pioneer, having begun an antituberculosis crusade in 1885. A resume of the work done in each of the States and a list of the various State sanatoria are contained in this report (*Public Health Reports of the U. S. P. H. and M. H. Service, Washington, D. C.*, March 2, '07).

Cancer Cures.—It is as well, in consideration of claims which have recently been made for cancer cures, to reflect upon Sir Thomas Bertram's opinion (*St. Louis Med. Rev.*, Oct. 13, '06) that we are to-day no nearer the cause or the cure of this dreadful disease than we were a century ago. "We are still delving and hoping. We are making progress slowly, but we are not yet within sight of the goal. Assertions have been made by irresponsible physicians that the germ has been isolated. The statement is false. The germ of cancer is yet to be discovered."

Ichthyosis, or Fish Skin.—Jameson (*Brit. Med. Jour.*, Feb. 16, '07) promotes exfoliation of the unduly adherent and effete horny cells by the use of resorcin combined with glycerin and starch, the result being a persistent soothing and softening medium. He advises also a super-fatted medicated soap, with which resorcin and salicylic acid are incorporated; this prepares the way for

the subsequent glycerinization. Cod liver oil internally at night, in small doses, may also be of some service.

Is Epilepsy a Disease of Metabolism? asks J. F. Munson (*Jour. Nerv. and Ment. Dis.*, May, '07), who hopes that by an exact study of the vital processes of epileptics during life, and of their tissues after death, the nature of the disease may be learned. Pathology has as yet discovered no changes which are typical of cases of every form and duration. Many doubt the primary nature of the changes which have been reported. We have still to discover the cause of the disease. Munson certainly does not deny the possibility of an organic lesion; he doubts whether this lesion is one which can be appreciated by the methods of the pathologist. The absence of a visible and demonstrable lesion has led to the assumption that endogenous poisons or metabolic irregularities were the cause of the disease. Clinical analogies to other auto-intoxications have led some to take this view; but such analogies are not direct proof. A poison or a disturbance in metabolism must be demonstrated experimentally. The urine of the epileptic has mostly been examined, but without any absolute results. No changes peculiar to the epileptic have been established as regards the cellular composition of the blood. Munson concludes that there are changes in the metabolism of the epileptic and in the toxicity of his body fluids. The nature of these changes and their time of occurrence is doubtful, because of contradictory findings. However, some variation from the normal is almost always reported, and no doubt "further work along biochemical lines, conducted with the greatest care, using the most exact methods, carefully controlling every possible factor, and using a goodly number of cases, will in the end bring a solution of the problem."

Trained Nurses for the Navy.—Our navy is at present without a single trained nurse; whenever one of our blue-jackets becomes sick he has to rely upon a hospital steward and an apprentice. Ordinarily the ship's surgeons are often taxed to care properly for the normal number of sick and injured. But when there is an epidemic of fever or measles (which is oftentimes serious among male adults), the like of which recently occurred on the Connecticut, it has been found impossible to give the invalids the necessary scientific nursing. Surgeon-General Rixey will, therefore, make a strong appeal to Congress to correct this lamentable deficiency; and he has already worked out the details of a plan for the organization of a corps of trained nurses, such as the army has. Afloat, these nurses will, of course, be men; but in the navy hospitals ashore, where the more difficult, lingering and dangerous cases are treated, they will be women.

The Typhoid Spine.—Gibney first used this term in 1889 to designate cases in which the condition comes on in convalescence after typhoid and not later than three months after the onset of this serious infection. Pain is the most marked feature. There is a distinct tendency to recover. Certain sensory symptoms are present. Gibney considered it an inflammation of the soft parts holding the vertebrae together; he declared it to be a definite organic condition, while others believed it

to be entirely a functional disorder without any organic change. Later demonstrations of kyphosis, of lateral curvature, of local inflammation, of wasting and reflex and sensory changes in the lower extremities have sustained Gibney's view. MacRae (*Johns Hopkins Hospital Reports*, April, '07) very well terms this condition typhoid spondylitis, and urges that this name be used instead of typhoid spine. Clinically there is a pronounced neurotic condition. The patient is progressing favorably; within three or four days he shows a complete transformation to a whining, complaining creature crying for no particular reason except that he cannot help it. The pain is relieved very little by sedatives; morphine is effective only in half-grain doses. There are such local changes as redness and swelling. There is, states MacRae, in some cases a bony deposit.

Pott's Fracture is always treated by J. P. Fiske (*Prize Essay in N. Y. Med. Jour.*, May 25, '07) with the foot in the position of inversion. Plaster of Paris is in most cases the best dressing—either that of Stimson, where inspection of foot and ankle is necessary, or the ambulant cast, where we expect the patient to walk early. The period of absolute fixation is at least 28 days. Later treatment consists in hot douching and massage—or strapping the joint for awhile, if it be sensitive. Where after removal of the cast there is a tendency toward pronation of the foot, the built-up shoe, raised on the inner side should be worn. In every case immediate reduction of the fragments is indicated; then, if there are complications, treat them.

Calcium Iodide in Leg Ulcers.—A. G. Peters (*Brit. Med. Jour.*, April 27, '07) has found that ulcers of the most stubborn sort have within a fortnight shown clean granulating surfaces, and have in almost all cases healed under the exhibition of this drug. In all his cases the circumscribing induration greatly diminished or disappeared entirely; in many the patients had unavailingly been saturated with potassium iodide. In some cases of syphilitic necrosis of the nasal bones there was much benefit from its administration, particularly with regard to luetic headaches. In all cases two grains of calcium iodide were given in mixture three times a day; there is no marked advantage in increasing this dose. Any mild external application—mercurial or iodoform ointment—is appropriate as an adjuvant.

The Causation of Renal Dropsy is still obscure, but F. A. Bainbridge (*The Practitioner*) gives the following factors concerned in its production: There is a scanty output of urine; in chronic nephritis the onset of cardiac hypertrophy and increased urinary flow are often accompanied by a diminution of the dropsy. Sodium chloride, and possibly also other salts, are retained in the body, owing to deficient excretory power on the part of the kidney; as a result of osmotic changes, retention of salts necessitates the retention of water as well. There is increased katabolism in the muscles because of a partial or complete loss of control over muscular metabolism by the kidneys; this excessive katabolism brings about the accumulation in the muscles and tissue spaces of waste products. These products, by osmosis attract water from the blood into the tissue spaces, when the amount of fluid into the tissue spaces cannot be carried off by the lymph channels, edema disappears. As a rule none of these factors is in itself a sufficient cause of dropsy, but at least two of them are always involved

A Linnaeus Bicentenary was recently celebrated by the University of Upsala, and also by the Academy of Sciences in Stockholm. With the latter the name of the great physician and scientist is closely connected. Before he attained a professorship at Upsala he lived and practised in Stockholm; and together with five other men founded the Swedish Academy, of which he was the first president. During this celebration of the two hundredth anniversary of the birth of Linné the Academy issued a number of publications, among which are important writings of this great man, now out of print, on botany, zoölogy, geology, minerology and medicine. The Academy has also had struck in gold a set of Linnaeus medallions, to be given as special prizes for noteworthy work in the natural sciences.

Raynaud's Disease.—J. V. Shoemaker (*N. Y. Med. Jour.*, May 4, '07) reports a case: A woman of 34 years, seen in the second or congestive stage of the disease, her fingers swollen, red, and cold to the touch. The affection may be mistaken for diabetic or for hysterical gangrene. In the diabetic type the onset is rather sudden; there are signs of weakness and malaria, emaciation is marked, sugar is found in the urine and the gangrene is rarely symmetrical. In Reynaud's disease, on the other hand, the onset is insidious, the general health remains good, there is neither emaciation nor sugar, and the gangrene is always symmetrical. In the hysterical type there is the history, pain is constant, the gangrene is symmetrical. There is periodic pain in Reynaud's disease and no hysterical history. In Shoemaker's case the causative factor was evidently a long standing diarrhoea, disturbing the vascular and hematoparetic systems. The blood was pale scarlet, with normal coagulability, erythrocytes, 3,240,000; leucocytes, 7,400; hemoglobin, 70 per cent. Treatment should be hygienic, dietetic, electrical and medicinal.

Colitis may be mucous, muco-membranous or membranous, states J. P. Tuttle (*N. Y. Med. Jour.*, May 4, '07.) The treatment is usually medical. The diet should be meat or fish twice daily; animal broths, dry toast or bread crusts in limited amount; rice, hominy, green vegetables, milk, butter and salads. No sweets, nor potatoes, peas, shelled beans or alcoholic drinks. There should be regular catharsis, every three days, by means of castor oil and glycerine. The colon should be flushed with normal saline, sodium bicarbonate or weak nitrate of silver solutions. Such intestinal antiseptics as phenyl salicylate, boric acid or zinc sulphocarbolate should be given. Regular business hours; regulated exercise and rest. Change of climate may be essential. Some cases, especially those due to latent or remittent amebic dysentery, are not cured by this treatment; here Gibson's cecostomy or appendicostomy must be done.

The Gradual Cure of Hysterical Paralysis.—H. T. Pershing (*Jour. Am. Med. Assn.*, May 11, '07) rightly considers that sudden cure by such means as suggestion is not advisable. Failure in attempting this may compromise future success; and on the other hand, too prompt success may have its disadvantages in depriving the patient of the discipline and enlightenment essential to a permanent cure. It is better gradually to

arouse and exercise the dormant kinesthetic centres, overwhelmed by inhibitory impulses from other centres, due to the perverted emotional conditions and ideas, by first raising the emotional tone, encouraging the patients to believe they will recover, and like judicious and wholesome psychotherapeutics. Physical measures—rest, food, tonics and sedatives—while very important, are apt to be overvalued; both psychic and physical treatment should be harmoniously employed. The dormant kinesthetic centres (those by which muscular movement is perceived) can be acted on specifically by sensory stimulation. Hysterical anesthesia is not absolute; and strong foradic currents, applied to the skin and muscles, followed by vigorous and even rude, passive motion of the affected limb, have a powerful tendency to restore the lacking sensations and ideas of motion. The slightest beginning of sensation should be noted; this will tend to bring the sensory centres again into relation with the other centres in the cortex. The cure can be completed by exercise in voluntary motion after some degree of normal sensibility has been awakened and after inhibitory fears are overcome. If the paralysis is nearly total the first attempts had best be favored by gravity, which will assure some motion and encourage the patient to increase it. A beginning once made, the attempts can be gradually increased, every encouragement being given, till at length some normal control is obtained, and the patient can practice some designated exercises in the physician's absence. The length of time which such a cure takes may advantageously be employed in re-educating the patient in composure and self-reliance; without these permanent recovery is impossible.

Buildings for Physicians.—In addition to the Sydenham building, which is given up exclusively to physicians, two others are now being prepared upon the same plan and for the same purpose, on West Thirty-sixth street and on East Forty-eighth street. Apparently this excellent innovation in medical practice has come to stay.

Tuberculin Therapy. Pottenger rightly believes (*J. A. M. A.*, May 11, '07) is in accord with the modern ideas of immunity. Theoretically tuberculin is capable of increasing the natural defenses of the organism when given in proper doses at regular intervals; and clinical experience warrants a more general use of it in combating tuberculous infection.

Acute Otitis Media.—W. J. Leach, New Albany, Ind. (*Journal A. M. A.*, April 13), describes acute middle ear disease, its symptoms, course and treatment. In case palliatives fail and bulging of the drum and pain increase after thirty-six hours' treatment, he advises the immediate performance of myringotomy as lessening the danger of invasion of the mastoid cells, and after cleansing with peroxid of hydrogen and mopping out with dry cotton, filling the canal one-third full of boric acid and inserting a cotton plug. After the discharge has ceased he would use 10 per cent. ichthyol in liquid vaseline until the wound is healed, careful attention being given to nasal and pharyngeal conditions. The treatment should be carried on directly by the physician, and Leach emphasizes this as an essential. If intrusted to others it will not be well done. The prognosis of acute otitis media is good, he thinks, if the condition is promptly treated, but when the mastoid cells are involved the prognosis becomes serious. The way to success in otology is never to let acute otitis become chronic.

MISCELLANY

Ethyl chloride in Neuralgias.—The local application of a spray has, declares *The Hospital*, not only sometimes relieved, but also cured, such forms of neuralgia as hemicrania, lumbago and supraorbital neuralgia.

A Mother's Clinic for the free instruction of parents in the care of children is to be established in Chicago. Plans have been prepared for a building. The scheme is the direct outgrowth of a kirmess held last fall by the Children's Memorial Hospital.

Solar Heat.—Dr. Asbeck, a French physician, having observed while in the tropics how the sun's intense heat accelerated healing, used the heat of ordinary fire in 500 cases of burns and wounds, after putting on the usual dressings, with uniform success, states *American Medicine*.

The Greeks living in Boston recently sent to Julia Ward Howe a bowl of roses on the occasion of her eighty-eighth birthday. This was thirty-three years after the death of her distinguished husband, Dr. Samuel G. Howe, who had served as surgeon with the Greeks in their 1824-27 war for independence.

In Solitary Abscesses of the Liver, states *Am. Jour. Surg.*, excellent results may be obtained by applying a Bier cup over the superficial opening once a day for five minutes. But the vacuum must not be increased too rapidly, else rupture of the vessels in the liver, with serious damage, might easily ensue.

The President's "Homes Commission" is made up of fifteen men and women designated by President Roosevelt in accordance with recommendations in a report made by J. B. Reynolds upon the housing of the poor of the District of Columbia. This body will make suggestions for sanitary reforms in Washington dwellings.

Increase of Insane Britons.—A half century ago one Englishman out of 536 was insane; the proportion, states the *London Good Health Magazine*, is one out of 285, the increase being most marked in the last few years. No doubt this increase is largely due to the acuter diagnostic methods of modern psychiatry; perhaps also those suffragettes have furnished a contributing factor.

Pilocarpine against pruritus is advised by J. J. Reid (*Med. Rec.*, May 25, '07), who considers this very disagreeable affection a neurosis in some way allied to neuralgia. In pruritus vulvæ, either associated or not with diabetes, Reid gives from one-eighth to one-quarter of a gram by the mouth only when the itching manifests itself; the drug is not to be given until the itching. 1-120 grain of atropine may be added if there is much sweating.

Chronic Lead Poisoning from handling black silk which has been impregnated with lead salts to improve its lustre and increase its weight (it is sold by the pound) is reported by the *British Medical Journal* (Nov. 10, '06). Not only do the hands come in contact with the lead compound, but much of the substance is given off as dust into the air in which the workers are employed from eight to ten hours at a time. Thus chronic lead poisoning is easily produced.

Louis Agassiz was born on May 28th, one hundred years ago. He is remembered perhaps less for his scientific work, which was very important in its time, than for his fine personality. And what this means can

only be appreciated by a contemplation of his portrait. Like Thayer, he was superseded during his own lifetime by younger scientists. But his spirit remained with all classes of men who knew him. He certainly during his lifetime realized the desire he expressed in a letter to his father: "I wish it may be said of Louis Agassiz that he was the first naturalist of his time, a good citizen and beloved of all who knew him."

In removing foreign bodies from the œsophagus Franke (*Centralbl. of Chir.*) has found that it is not always necessary to open that tube, even though extraction through the mouth is impossible. If the foreign body is in the upper part one should cut down in the manner prescribed for œsophagotomy, but should locate the impacted object before incising. Oftentimes, by careful manipulation from without with the fingers it may gradually be worked upward until it can be reached by an instrument per os. Franke was able in this way to extract a set of false teeth which had been swallowed and which had been impacted in the upper part of the œsophagus.

An Antiseptic Square Deal is demanded by the *New York Sun* in behalf of the recently arrived Prince of the Asturias, who has had forced upon him a wet nurse, arrayed in "a royal uniform of red velvet, trimmed with gold lace. Such an unsanitary costume is only fitted for the prima donna of a comic opera. Indeed it is a positive menace to his health; for, worn from day to day in a warm climate it cannot fail to be the habitation of all sorts of germs, microbes and bacilli of high and low degree. This nurse should be clad in antiseptic linen, changed after each nursing; and each garment carefully sterilized before being worn again." Evidently those Spanish hidalgos are not up to the newest things in prophylaxis.

The Toxicity of Tobacco may not have any relation at all to its nicotine content, observes the *Medical Record*. Some, not finding nicotine in the smoke, consider pyridin the harmful constituent. Some Turkish tobaccos almost free of nicotine yield a pungent toxic smoke. This pungency bears some relation to the proportion of organic citric and malic acids in the leaf, which varies widely in this respect. Tobacco possessing the irritating organic acids yield a larger ash than the milder kinds, with a minimum of citrates and malates. But after all "the injuriousness or harmlessness of the weed depends not so much on its character, or on the way it is used, as on the kind of man who does the smoking." And also on whether the smoker inhales.

The Actual Cautery is used by Desfosses and Martinet (*La Presse Med.*, April 13, '07), in general medicine to destroy tissue, for its antiseptic action in supposedly poisoned wounds and for the revulsive effects produced. Two contraindications to its use are: fever and cardiac degeneration. By means of it lupus can be destroyed, as also superficial epitheliomata, mollusca, papillomata, naevi and other skin diseases. It may be employed in general surgery for its revulsive effects on serous inflammations of joints and certain other forms of arthritis, for the direct effect on angiomas and hemorrhoids, and also as a hemostatic. In oto-rhino-laryngology it is useful to reduce hypertrophied turbinates, to destroy pharyngeal granulations, to remove tonsils and to destroy laryngeal tuberculous neoplasms.

CLINICAL ESTIMATION OF AMMONIA IN URINE.

A Convenient and Cheap Home-Made Apparatus.

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IN preparing this article, the writer has been surprised to note that two standard text-books on Urinary Analysis omit the practical consideration of the elimination of ammonium salts in the urine. A small amount of ammonium salts, usually from $\frac{1}{2}$ to $\frac{3}{4}$ of a gram, estimated as ammonia— NH_3 , is normally eliminated in the urine from the destruction of nitrogenous food and tissue. This amount may be largely increased in diabetes, in inanition and in various other conditions in which nitrogenous metabolism is abnormal. In spite of good authority to the contrary, even neutral ammonium salts increase the reading of urea in the various modifications of the hypobromite test. The writer's authority for this statement is the nitrometer itself, with solutions of ammonium salts added to the hypobromite solution. As to the nature of the gas produced and whether it could be used for estimating ammonia, in the absence of urea, etc., the writer has nothing to say but that gas is produced in the nitrometer by the breaking down of ammonium salts, so as to increase the reading for urea, is an absolute fact, which becomes of some importance in cases of markedly disturbed nitrogenous metabolism.

Even chemists, in cases in which a simple and not necessarily the most accurate method of quantitating ammonia is desired, use a desiccator, decompose the ammonium compounds slowly, by adding barium oxid, and collect the resulting ammonia gas in a standard solution of sulphuric acid. The ammonia is measured, after the lapse of a couple of days, by titrating the sulphuric acid solution and estimating ammonia by the decrease of acidity.

The apparatus to be described, while involving no new chemical principle, has the following advantages over the desiccator, in addition to cheapness: It occupies less room, the avoidance of leakage into or contamination from the outer air is minimized by the substitution of an actual hydraulic trap for the vaseline-smearred ground glass surfaces of the desiccator, the small volume of confined air hastens and renders more complete, the absorption of ammonia by the acid solution. This last point was very well illustrated by some preliminary experiments with a much more elegant apparatus, including a good-sized bell jar; which required a long time for the complete absorption of ammonia. The use of thymol to prevent ammoniacal decomposition—unless, occasionally in cold weather—is also an additional precaution not generally observed by chemists, I believe. Obviously, it is an important one.

The apparatus consists (1) of an ordinary, straight-sided tumbler, of a capacity of about 250 c. c., (2) of a tin, glass, enamel ware or other dish $\frac{1}{2}$ —1 inch deep and a little larger inside than the tumbler is outside, (3 and 4) of two small ointment jars of a capacity of about 30 c. c. each, one of them at least, being white, and (5) of a retentive device of wire and glass

tubing, to hold the upper ointment jar in place. It may also embrace the lower one but this is unnecessary.

In employing this apparatus, about a quarter of an inch of purpetrol or even one of the less refined mineral oils, as albolene, cosmolene, etc., is poured into the dish (A) 10 c. c. of urine with a little thymol is placed in one of the ointment jars (B) and this is set in the middle of the dish. 10—20 c. c. of $\text{N}/10$ — $\text{N}/4$ sulphuric acid solution is placed in the white jar (C) and this is set in the retentive device (D). When everything is in readiness about 1 c. c. of barium oxid is dumped into the urine, the jar containing the acid solution is set over the one containing urine and the tumbler (E) is inverted over both. It is a good plan to label the glass with name, date, and amount of standard acid solution used. After a couple of days, the apparatus is opened and the acid solution is titrated with $\text{N}/10$ sodium hydroxid solution, using hæmatoxylin as an indicator, phenolphthalein giving an indistinct end-point in the presence of ammonium salts. The loss of acidity shows the amount of ammonia gas absorbed. In charging the apparatus and opening it and titrating, the presence of notable quantities of ammonia in the air should be avoided.

If $\text{N}/10$ solutions are used, the maximum capacity of the acid solution is 1.7 milligram of ammonia per c. c. (atomic weight of N, 14, plus 3 of H). Practically, the solution will not take up ammonia to complete neutralization, but if insufficient acid has been supplied, only a drop or two of $\text{N}/10$ alkali will be necessary to establish the end-reaction. Thus, if the urine amounts to approximately 1,000 c. c. and there is no great excess of nitrogenous catabolism, 10 c. c. of $\text{N}/10$ acid for 10 c. c. of urine, is ample. If the urine is concentrated or if diabetes or any other condition exists in which a great excess of ammonia is to be anticipated, we must allow accordingly. It is a convenience and a factor in avoiding experimental error, to leave room in the jar containing acid, so that we can titrate to neutralization in it. If we use $\text{N}/4$ acid, and our guess as to presence of a considerable amount of acid is correct, we can titrate in the same jar. The main point is to have an excess of acid for it is often difficult to preserve the urine without change for two or three days and it is provoking to find our acid saturated and to have to start a fresh test. A larger jar or beaker may be used but, in spite of the custom of chemists, the color changes in a white jar or cup, are much more easily detected than in a clear glass vessel, even against a white tile.

The following case may be used as an illustration of the process: Patient No. 104 of 1905-6, had had almost no nourishment for a month. Various metabolic questions occurred. There being no sugar in the urine and the urea being low, it was considered safe to allow 10 c. c. of $\text{N}/10$ acid for 10 c. c. of urine. 8.5 c. c. of $\text{N}/10$ alkali were required to neutralize. Hence, 1.5 c. c. had been neutralized by ammonia. 1.5×1.7 milligrams = 2.55 m. g. for 10 c. c. of urine. 50 times this amount was passed in 24 hours, hence the elimination was 127.5 milligrams of ammonia, indicating a corresponding deficiency of catabolism, as compared with urea formation.

RESECTION OF THE SHOULDER FOR OSTEO-MYELITIS.*

BY J. HUBLEY SCHALL, M.D., BROOKLYN, N. Y.

THE patient is a stenographer, aged twenty-five years, with a good family history.

He denies having had syphilis, but had gonorrhoea two years ago.

About three years ago he fell from a bicycle, striking his right shoulder and arm; the injury was followed by more or less pain and swelling of the arm and joint, which subsided under local treatment.

He did well till two years ago, when he had an attack of typhoid fever, which was soon followed by the reappearance of the pain in the shoulder joint, which was worse when the parts became warm, and more especially at night when the patient was in bed.

The pain, which was of a neuralgic and throbbing nature, became so intense that the patient was unable to sleep at night.

As the condition advanced there was a significant loss of power in the parts, with limitation of motion.

There was neither tumefaction, change in color or local heat of the tissues about the joint.

The skiagraphic picture showed nothing.

His physician prescribed tonics, iodide of potash, massage and electricity with negative results.

Within the past three months there has been a marked restriction in motion. The patient is unable to place the hand on the opposite shoulder nor was he able to use the arm with any degree of satisfaction.

Dr. W. H. Bishop was asked to see the case in consultation and after a careful consideration advised, for diagnostic purposes, a wide incision down to the periosteum and bone, a procedure I strongly advised two months ago.

October 27, 1906. The patient was operated at the Prospect Heights Hospital.

On exposing the head of the humerus the periosteum was found thickened and easily peeled off, revealing necrotic bone extending downward to two inches below the lesser trochanter.

After resecting the bone a little below the area of necrotic tissue the medulla was found to be infiltrated with a greenish pus.

The inflammation seemed mainly confined to the marrow and a distinct central necrosis was present.

The extension of the suppuration into the shaft of the bone was limited by granulation tissue produced in the bone marrow.

October 28. The patient was much exhausted by the operation, then rallied and afterward went on to rapid convalescence.

The drainage was kept up on account of the free muco-purulent discharge and the wound irrigated daily with permanganate of potash.

At the end of four weeks the cavities filled in, and the dressings were dispensed with.

December 4. Passive motion showed the arm to be free; he had some power in lifting it from his side, the fingers recovering their power, both of flexion and extension.

December 30. Examination of the arm shows that it continues to gain in power and mobility. A certain amount of new bone has formed, and this at the proximal

end had spread out and enlarged somewhat, so as to form a head; it was in contact with the site of the glenoid cavity.

June 21, 1907. Patient has complete control over the elbow. The hand movements are perfect, with a good, firm grasp. He says the limb is as useful as that of the opposite side.

141 St. Marks Avenue.

THE LAMENTATIONS OF A LUNGER.

BY W. T. MARRS, M.D., PEORIA HEIGHTS, ILLINOIS.

HARRY, you seem to be growing weaker all the time, and you'll have to change climate if you get any better. Get ready and go West or Southwest as soon as you can."

This was the decree that Doctor Good, our old family physician, had handed out to me. Not so very comforting, to be sure, but the directions said to take it. There were a great many consumptives in that part of Indiana where I lived, and it was the fashion to bundle them up when they were on their last legs and send them "out West." It would have been considered idiotic to have sent one of these invalids in any other direction; so it was toward the setting sun that I turned my pale face. It was a serious matter with me, this leaving of home and friends, and I rather doubted whether I would look upon the familiar scenes and faces again. I had seen so many of my friends come back in a box, or get back just in time to die that the situation appealed to me differently than it had ever before. The hope and optimism of consumptives is often commented upon; how they lay plans for their little worldly affairs up until almost the moment of their death. Well, that is because they want a little something to occupy their time, something pleasant to think about, and it is easier for the consumptive to be cheerful than morose. He is more dead than alive anyway; his nerve cells and centres do not respond readily to such ordinary stimuli as thoughts of dying, and on the whole he is not capable of worrying very much if he wanted to. Nevertheless, the gravity of the situation was fully apparent with me. I began to "take stock" to see just how I stood in the matter of vitality and to count the forces that weighed against me.

First I recalled the fact that fortune or the fates—commonly called heredity—had not dealt kindly with me. I was born of parents whose stock of vitality was below par. My mother had been carried off at an early age by the arch enemy of the race, tuberculosis. My father, while not manifesting tubercular tendencies, nevertheless possessed an inherent weakness which caused him to succumb in his prime to an attack of pneumonia. I had arrived at man's estate in the home of a generous uncle, and had acquired a fair education, but my store of physical strength was scant. My narrow chest, delicate features, eyes of unusual lustre, to say nothing of more convincing signs, impressed even the casual observer that I was doomed to be another victim of "the great white plague." I tried to teach school, but was compelled to give it up. The consensus of medical opinion at that time was that the extreme southwestern part of the United States was the most favored spot for consumptives, and thither I went, after a hasty closing up of affairs at home. I was

* Case presented before the New York Academy of Pathological Science.

weak and wan, and my friends hardly expected me to stand the arduous trip, if I may express a candid opinion. But then they would not have been performing what they considered a bounden duty had they not shipped me off to some Promised Land for consumptives. I had little tissue to excite fever and invite a rapid action of the disease, so I was enabled to stand the journey better than I had anticipated.

In my new surroundings I met with many obstacles. Things were not as I expected. I could not get a desirable room or any accommodations for a reasonable price. Board alone cost me thirty dollars a month. My room was anything but inviting, but I paid well for it. I found that the man who occupied the room before me was a health-seeker and had lost his life at the job.

The water was bad, the sand storms were disagreeable, and the torrid sun, while perhaps destructive to germ life in a way, was also enervating to an unacclimated invalid. I wondered at first why I did not improve now that I was "out West." I weighed myself frequently, and found that I was hardly holding my own. I consulted every day with a doctor of reputed skill. He occupied palatial rooms and drove one of the highest-priced automobiles. But I soon discovered that this man was not painstaking like the home physicians. No examination of sputum was made to confirm in a positive manner my true condition, although I paid the doctor well for his tersely-told advice. In fact, I soon learned that every service cost many times what it was actually worth.

I was growing very despondent, and with my other afflictions was coupled a bad case of hoem sickness. This malady—if such we may call it—we are told by old soldiers, is often responsible for the death of healthy young men who are called upon to serve their country. How much more appalling, then, is it to the doomed consumptive away from home and friends on a mission so devoid of hope.

This town of Lungville—only that wasn't its real name—was full of "lungers." Being widely advertised as a health resort, the afflicted flocked here in great droves only to be shorn of their cash. These health seekers all came from the North and East. The native consumptives were sent elsewhere—another case of the hills being green far away.

I found that consumptives were ostracized from all save their kind. They were, generally speaking, colonized to themselves, for citizens shunned them as they would lepers. They were graded according to the size of their pocket-books, and the stage of the disease. There was a sort of social distinction that would be hard to define, and it puzzled me a little at first to know just how to classify myself. Some had plain "consumption," but more were simply suffering from "lung trouble." Many had "asthma," and not a few had "bronchitis." Many had "tuberculosis," while a few persons possessed of more erudition than the rest of us had "incipient tubercular tendencies." Many claimed to have only "neurasthenia," and all seemed inclined to deny their true condition, perhaps because a consumptive was regarded as an outcast and something to be avoided. One crude affair which was dignified by being called a sanitarium sheltered about one hundred in the last stage. They were called the "L. & G. of B. L's." This interpreted meant: "Ladies and gentlemen of the

busted lungs." Nothing is too serious for levity and jest.

When I was about to give up in despair one day I chanced to fall into conversation with a Doctor Goodwin who, afflicted himself, had for years traveled for his health and incidentally studied climate for consumptives. He said that every state from Maine to Mexico and from Washington to Florida had at some time been tried and lauded as the ideal climate. "But, after all," he concluded, "good, pure air is composed of oxygen and nitrogen. About all the difference there is in air is its dryness or humidity, its heat or cold. One climate has few advantages over another. The best treatment—"

"Yes, Doctor," I interposed, "it is to force-feed, exercise vigorously, live out-of-doors, practice deep breathing, take plenty of sleep and read your Bible regularly."

"Very good," assented the doctor, "but in addition to these measures I would suggest at least one other. Get busy. Keep busy. Work constantly at something in keeping with your strength. Forget yourself and your troubles. Cultivate fads. Put all your energy into them. We all know the baneful effect of mental anxiety—worry—upon those who are otherwise normal. No consumptive can hope to eradicate this state of mind unless his time be judiciously employed. No one can hope to recover so long as he holds a mental picture of death and dying. This is not Christian Science gospel; it is simply a law based upon psychic truth. Young man, go home, if you have one, and go to work at something. Get away from these scenes of suffering, sorrowing, gloom, despondency and death."

I went. My friends seemed glad to see me on my return, and I am sure that I never experienced any keener pleasure than I did in their kindly greetings. That alone seemed to give me a new lease on life. I resolved to give myself a chance to get well and tried to forget that I was sick. I busied myself with one thing and another, but took advantage of all natural aids. I slept out-of-doors when the weather was not severe. I lived on eggs, milk, oysters and ripe fruit. I took care not to indulge in too much physical exertion, but endeavored with all my might to keep busy mentally. In a few weeks I began to gain slightly in weight and strength, and this continued slowly until the end of a year, at which time it seemed that my disease was arrested. I am still alive, and while not very rugged in health, I economize such strength as I have, and manage to get on pretty well. I feel that if I had pursued the fickle goddess of health in the usual way I would have been spoiling eight feet of good ground for about fifteen years past.

Air Massage.—R. Klapp (*N. Y. State Jour. Med.*, June, '07) produces the effects of massage without the necessity of touching the parts by directing strong currents of air on the skin. Such currents produce hyperæmia. The treatment is useful in painful affections, such as recent fractures, and in macerated conditions of the skin in the neighborhood of wounds. Infiltrated areas are caused to be absorbed more rapidly. Klapp uses an apparatus constructed by Eschbaum, which is capable of producing as strong a current of air, either hot or cold, as is necessary.

THE MEDICAL AND SURGICAL TREATMENT OF NEPHRITIS.

BY M. SHELLENBERG, M.D.

YEARS ago the great bugaboo in Bright's disease was albuminuria; for many years the term albuminuria denoted the existence of certain changes in the kidneys; the amount of albumin being taken as the measure of the extent of the changes. Only within the last twenty years has albuminuria been studied and reduced to its proper position as only one of the symptoms of kidney disease; we know now that it may exist without visible structural change in those organs, and that it may be absent or nearly absent, though advanced renal changes exist. Albuminuria occurs not infrequently under a variety of conditions in which there is no alteration of the kidneys, and we know that the amount of albumen is neither directly nor indirectly a measure of renal changes. No longer estimate the worth or success of treatment solely or mainly by its influence on the albumen in the urine. "Drain of albumen from the system" is to be no longer feared, for the total amount excreted even in the worst cases exceeds half an ounce of dry albumen daily, an amount which is much less than is lost in many conditions not regarded as very grave, and which experience has shown is not a source of danger to the patient; cases have been reported in which albuminuria has lasted twenty years or more without visibly impairing the patient's general health and nutrition. Kidneys damaged by inflammation permit the passage of serum albumen for a long time after the cessation of the inflammation, and we no longer look upon albuminuria as evidence of an inflammatory exudate, but of an alteration, transient persistent, and even permanent in the walls of the renal vessels. Bright's disease in its acute form, when it attacks previously healthy organs, is a curable disease, and there are forms of chronic disease where the recurrence of the cause being avoided, the kidneys regain their normal function, and the patient continues in good health, even though the kidneys remain permanently injured. A grave prognosis is seen in two classes of cases, those in which the structural changes are excessive, and those in which we are unable to remove the persistent and efficient cause; so we should judge of the amount of renal disease, not by the albuminuria, or even by the tube casts, though these are of importance, but by the evidence of cardio-vascular and retinal changes and the general constitutional condition. Seek to determine the cause of the trouble; it is in the cases of advancing chronic Bright's disease of constitutional and somewhat obscure origin, which have been called "gouty," or "lithæmic," without either precise evidence of lithæmia, or its ability to work this mischief, of which we see the best concrete analogue in the poisonous action of lead on the kidneys, and which might be fairly enough called "chronic toxæmic Bright's disease."

In Bright's disease, "milk diet," is a term easily learned and easily remembered; and such simple formulæ are very popular with the profession, and are very hard to uproot; milk diet has been extensively and almost exclusively recommended as the proper regimen for the subjects of Bright's disease, not only as a negative diet; that is, as one which excludes other and injurious ailments, but as a positively beneficial treatment. "Take as much milk as you can, the more the

better," is the common statement. While the proper diet for acute Bright's disease is milk, with the addition of a certain amount of farinaceous food, which supplies the alkalies so necessary to the body, and this diet should be only gradually and cautiously increased by adding vegetables and fruit, eggs cooked in various ways, and light meats as convalescence progresses; yet where the chronic state is established, or in those cases which have begun insidiously and are always chronic, this diet is out of place, as pointed out by Saundby, unless during the supervention of an intercurrent acute attack, when the case must be treated temporarily as primary acute nephritis.

While a case of chronic Bright's disease cannot be cured, we must treat the patient and not his illness; consider all his symptoms, the state of his digestion, his habit of body, his mode of life, and arrange a diet suitable. A printed dietary for Bright's disease cannot be arranged as we do for diabetes, and, in attempting to formulate a general rule, Saundby got no further than this: Eat very sparingly of butcher's meat; avoid malt liquors, spirits, and wines. But in some cases we must exercise more restraint; where there are any of the so-called uræmic symptoms, especially persistent headache, all butcher's meat had better be prohibited. Gastric catarrh, a very common complication, calls for the elimination of all uncooked fruit and vegetables, and a choice of the softer and more easily soluble articles of food, with a warning to eat only very well cooked farinaceous food; toast and rusk in preference to bread. Stout people should be put upon a definite allowance of food, their body weight being kept as far as possible within reasonable limits. Naturally persons leading sedentary lives should have less bulky food than those who take much exercise, and this must take the form of animal food of a light kind. Warnings against butcher's meat must, of course, be made to exclude meat soups, especially beef tea, which should never be given to any one suffering from Bright's disease, but albuminous food should not be regarded as dangerous if free from extractives. Gelatine and isinglass, white fish, chicken and sweetbreads, are all excellent. Fat bacon is an article of diet much used in many parts of the country, and is not at all objectionable if the stomach tolerates it. With respect to drinks, I generally allow tea, coffee and cocoa, unless there are digestive difficulties, when cocoa may have the preference; but some patients complain of coffee causing lumbar pain, probably caused by the very decided diuretic effect of caffeine. Use alcohol very sparingly indeed, only red or white Bordeaux wine, preferably diluted with alkaline mineral water.

The kidney is growing more important in surgical operations; for example, Kelly has reported upon it in 400 surgical cases. In these cases the urine was examined immediately on entrance to the hospital, again within from 12 to 48 hours after the administration of a general anæsthetic, again if clinical signs suggested this condition, or if the urine showed the presence of acetone or diacetic acid; and, finally, the urine was examined in most cases every other day until the clinical symptoms had ceased and until it no longer contained a pathological amount of acetone or diacetic acid. Of these 400 cases, symptoms of acid intoxication were present in 46; the test used for determining the presence of acetone being as follows: to 5 c. c. of urine add a

crystal of sodium nitroprussiate and sufficient sodium hydrate to render the solution strongly alkaline, thoroughly shaken up in a test tube. On the addition of glacial acetic acid, the presence of acetone is shown by the occurrence of a purple color to the foam, while the presence of diacetic acid is shown by a Bergundy red color appearing on the addition of strongly aqueous solution of a ferric chloride to the urine. Of the 46 cases, acetone and diacetic acid, separately or combined, were found in the following conditions: 11 cases of appendicitis, 14 of contusions and fractures, 2 of gastric disease, 2 of carcinoma, 3 of severely lacerated contused wounds, 2 of localized septic processes, 2 of cerebral concussion, 1 each of salpingitis, acute multiple suppurative osteomyelitis, floating kidney, fœcal fistula and enterocolitis, epilepsy, tuberculous cervical noditis, burns and typhoid fever, diabetic gangrene hæmorrhoids, and alcoholism. In 17 cases symptoms were present on entrance; in 12 cases, within 24 to 48 hours after the administration of an anæsthetic (ether being used in 10 cases and nitrous oxide in 2 cases); in 17 cases symptoms developed later without any anæsthetic being administered, no cause being found. Acetone and diacetic acid were present in the urine at the same time in 24 cases; acetone alone was present in 20 cases; diacetic acid alone in 2 cases; acetone, diacetic acid and sugar were present together in 3 cases; acetone and sugar in one case. In these 46 cases there were six deaths; where the onset could be carefully noted, the first symptom to attract attention was a peculiar apathy, accompanied by a peculiar, pungent, fleeting odor to the breath, a distaste for food, slight increase of body temperature, and, generally vomiting, occurring without apparent cause, following immediately on taking anything into the stomach. In the mild cases the ejecta was colorless, copious and watery in character, having a foul acid odor and containing particles of semi-digested food, but, in the severe cases it was dark, bile stained, of a coffee ground appearance, and continued so until death. In the severe cases, bicarbonate of soda was given by mouth; if retained, by enemata, subcutaneously and intravenously, but usually without avail, and the best results were obtained by the use of adrenalin chlorid, given subcutaneously (in children about 200 c. c. of a 1 to 50,000 solution; in adults, 500 c. c. of the same solution) every eight to twelve hours. To relieve thirst, enemata of salt solution were given every six hours, alternating with nutrient enemata. This condition is not due to acetone circulating in the blood; according to Kelly the amount of acetone found in the urine being no index of the severity of the condition.

Goodhart, speaking of albuminuria without organic disease, has met with it in thirty cases, of which twenty-six were males and thirteen females; he classifies this form of albuminuria into five groups: (1) Oxaluric, in which the albumen may be derived from the mucous surface of the urinary passages being scratched by the sharp edges and corners of the crystals. (2) Lithæmic, which may occur at all ages, the result, especially in children, of too heavy feeding on solids, without sufficient liquid being taken with the food. (3) Hæmoglobulinuric. In this condition, instead of the blood colored urine of hæmoglobinuria, albinuria, albumen is passed, being sometimes caused by a cold bath. (4) Extra renal albuminuria, or albuminuria derived from

the genito-urinary passages, as in women by leucorrhœa, and in men by gleet, or other venereal discharge; but in many it is only the natural seminal fluid, or prostatic secretion. The albuminuria in these cases is only present in the early spring. (5) Neurotic albuminuria. Seventeen of the 39 cases belonged to this group. Goodhart considers the cause to be the exhaustion of the higher brain centres from work and worry; the lower centres, being relieved of the inhibitory influence of the higher centres, fall into a turbulent condition, and hence cause an intermittent discharge of albumen. In an extensive analysis Mackenzie shows the different proportions in which the more important proteids occur in the urine in the different forms of albuminuria, and comes to the following conclusions: (a) In all cases of albuminuria both the chief proteids, serum and globulin albumin, are present in the urine. (b) The proportion of these proteids varies considerably; the quotient of the amount of serum albumen divided by the amount of serum globulin sometimes only 6, sometimes as high as 39. (c) In acute nephritis, when blood is absent, serum albumen is proportionately high; when hæmoglobin is present, the serum globulin is in excess. (d) As the nephritis becomes chronic the quotient of serum albumen falls; this diminution depends more upon the condition of the patient, and is related to a similar change in the blood plasma, than on the state of the kidney. (e) The high proportion of serum globulin does not distinguish amyloid disease from ordinary forms of chronic nephritis, as has been previously maintained. (f) The statement that functional albuminuria is characterized by the high proportions of serum globulin is not correct. (g) In every instance the proportion of the proteids to each other varies greatly in the course of the day. In making comparisons in different cases it is, therefore, necessary to examine specimens of the mixed urine of the twenty-four hours, and to take into account the nature of the diet. (h) Serum globin is at the highest during the night, falls greatly after breakfast, when it usually reaches its lowest point, rises again toward evening. The connection between these variations and the taking of food has not been definitely settled; milk diet has the effect of increasing the proportion of serum albumen. The amount of proteids passed appears to have a tolerable relation to the amount of proteids ingested, and, excluding a milk diet, the increase of proteids in the urine on a diet containing an excess of these bodies is due to an increase of serum albumen.

Bakes believes that the aim sought by Edebohls, in his method of decapsulation of the kidney, of the establishment of new conditions of circulation for the organ would be better accomplished by wrapping the decapsulated organ in the omentum or by pushing the decapsulated kidney down between the roots of the mesentery after energetic friction of the serous surfaces; the choice of these methods depending on the size of the kidney and the condition of the omentum, while in a shriveled, atrophic omentum, the second procedure would be preferable. He tried the first method in a clinical case last February; the patient bore the operation well, and the decorticated kidney was easily enveloped in the omentum drawn up for the purpose; proceeding by Edebohls' technique, he removed the capsule; then slits the peritoneum parallel to the upper edge of the cæcum and ascending colon, and fastens

the lower lip of the wound in the peritoneum to the hylus of the kidney with very fine sutures through the parenchyma of the kidney its entire length. The omentum is then drawn up through the slit in the peritoneum and wrapped around the entire kidney. The peripheral parts of the omentum are fastened partly to the kidney and partly to neighboring tissues to prevent its slipping back. The upper lip of the wound in the peritoneum is then sutured to the serosa of the omentum, and the wound sutured in tiers. He thinks that this insures far better conditions for the circulation thereafter than in the ordinary method of Edebohls.

Writing on the results of surgical intervention in acute and in chronic nephritis, as well as in various other kidney affections, Yvert believes that in acute nephritis the reports published to date indicate that nephrotomy is preferable, with nephrectomy later, if it proves inevitable, for the former has a mortality record of 5 and the latter of 33 per cent. In pyonephrosis resulting from a concrement, nephrolithotomy, incising the convex margin of the kidney down to the seat of the stone, is the better operation. Out of nine cases of chronic nephritis treated with nephrotomy by himself or others, five of the patients were completely cured, two much improved and two died; when doubt exists as to which kidney is involved, the "reno-renal reflex" is an important guide, and an incision on each side would banish every fear. Nephrectomy has been done by him in five cases of chronic nephritis, with five cures; in two cases the intervention was limited to capsulotomy with the actual cautery, both being cured. Decapsulation does not seem to offer many more advantages than simple nephrotomy, while it is a more serious operation, but the future alone can decide whether it is preferable to nephrotomy; the evidence to date seems to be in favor of the latter. Rovsing's "nephrolysis," or destruction of adhesions after nephrotomy, was successfully tried in three cases, and it seems to be indicated when the adhesions are particularly extensive and tough. In nephrohagia, nephrotomy is indicated after failure of other measures, as Israel's experience has been so favorable with it, being also indicated in cases of rebellious nephralgia, for the same reasons. In puerperal eclampsia, after failure of all other measures, Yvert would not hesitate to perform nephrotomy, bilateral if necessary, following Edebohls to a certain extent, but not to the extent of decapsulation. Yvert believes that kidney affections are coming more and more into the realm of surgery, but operative treatment is indicated only after medical treatment has proved powerless; under these circumstances it should not be abused, but should be resorted to without fear, and of all the modes of intervention proposed to date, the incision along the convex margin of the kidney, simple nephrotomy, seems to be the most effectual, while it is the simplest.

Too little study has been made of the last stage of chronic Bright's disease; as Baumgarten has pointed out, the diversity of symptoms observed in patients whose arteries have become sclerotic and whose kidneys are in process of contraction is extensive, but by separating the phenomena of secondary importance from the essential symptoms, and by rating the latter at their true value, most cases can be reduced to a simple proposition. The hard artery, the tense pulse, the large heart, the abundant urine, containing a small amount

of albumin and few casts, the nervous symptoms, headache, dyspnoea, irregular pulse, the disturbances of vision will force the diagnosis, even in the now typical cases. While the heart continues to perform vigorously its increasingly onerous task, such patients travel a common road, though not with equal speed; and unless their journey be cut by a brittle cerebral artery, or by some other intercurrent event, they sooner or later arrive at the point where the growth of their heart has attained its limit; then the time arrives when the heart can only yield and dilate; they enter on the last stage of the tedious illness; here the type varies: One patient, to whom, perhaps, his slowly marching illness has brought little suffering and concern, whose course of sickness has been so latent that he has not consulted a physician, now succumbs quickly to uræmia, or somnolence, coma or convulsions in rapid progression, lead up to the unexpected terminations. Such cases are for the most part those with the highest degree of renal atrophy, while the heart has for a long time remained strong, to compensate by its labor for the defect in the renal parenchyma. As the heart begins to fail, the kidneys are already so small and so insufficient that an acute retention of urinary excreta now brings on a rapidly fatal uræmia, before the retention of water has yet caused serious trouble; there is but little dropsy in these cases. In another type the patient, whose kidneys have not yet reached so high a grade of contraction, suffers more particularly from the arterio-sclerosis, which directly influences the function of the heart before the cardiac muscle itself has yet undergone much deterioration, indirectly by nervous disturbances of the heart, palpitation, arrhythmia, cardiac asthma, angina pectoris; directly by atheroma of the arteries, atheromatous lesions of the valves, especially aortic insufficiency; when the first signs of heart failure appear, the patient enters the last stage with most acute, cruel suffering, a chronic angina pectoris, which, fortunately, soon exhausts life, even without the severer uræmic symptoms, and almost without dropsy, while a third patient arrives at the last stage with tolerably good arteries, and with kidneys not yet far advanced in atrophic contraction; only the weakness of the heart, the venous stasis, the dropsy, gradually grow upon him, and he resembles the patient with chronic parenchymatous nephritis; perhaps a sudden hydrothorax or hydropericardium hastens his end, or a pulmonary oedema, or that worse and more acute body oedema which is known by its sero-sanguineous, even purely bloody, expectoration, with subcrepitant rales and dulness of percussion note in the lower lobes, charitably ends his sufferings; or else, slowly, after many months, under never ending discomfort the patient is gradually overwhelmed in his dropsy. It is scarcely necessary to add that transitions and combinations are met with still oftener. Keep in mind these different types in unraveling the often hopeless tangle of the individual case; remember that the lesions of arteries, of kidney, and of heart, progress at different rates in different patients, and crowd into the foreground according to their intensity. This explains the very unequal duration of the final stage; the clinical course being no longer governed by the arterial lesion and the over activity of the heart, but by the progressive heart failure and the consequent renal incompetency. The heart having less than the re-

quired propelling power, the excretion of water by the small kidney is no longer copious, but diminishes, the urine containing a larger percentage of albumin, owing to its diminished volume, although the daily excretion of albumin remains about the same. The heart is large, but no longer efficient, whether by reason of valvular lesions consequent on atheroma, or on dilatation of its chambers, or because its innervation is faulty, while the pulse retains the rate of near one hundred to which it has been habituated for months or years, but becomes in time more compressible, even weak, finally small, and, especially in the two first mentioned types, irregular. The respiration is correspondingly frequent. The dyspnoea preserves at first its character of cardiac asthma without oxygen hunger; only with increasing ascites does it pass more and more into the ordinary form of mechanical dyspnoea. The respiration may become loud, sighing, moaning, or take on the Cheyne-Stokes type, but in cases partaking of the third type, anasarca and ascites increase and the dropsy begins to lose the well-known marks of renal dropsy, the frequent shifting, the rapid change of location and of intensity; it assumes more distinctly the character of a cardiac dropsy, changes its amount only through energetic therapeutical interference, establishes itself permanently in the dependent parts of the body, and ascends from the legs. The disturbances of vision by albuminuric retinitis are characteristic; but apart from these, lesions of sight that must be ascribed to other causes are observed in this stage of contracted kidney. Sudden loss of vision, so that the faculty of sight is lost gradually, but completely, for hours or perhaps only for quarter hours; the heart in this stage, which is sometimes of long duration, is never absolutely weak, but relatively incompetent. The final stage had not been reached sooner, because the heart had become abnormally powerful; the patient may have a full pulse, of considerable tension, a heaving apex beat, and a loud second sound over the aorta; if he had sound kidneys this would indicate a heart working with much beyond the normal force; but even this excessive cardiac power is now no longer sufficient to keep up the current through the small kidneys at such a rate that the wasted renal parenchyma can excrete from it the required amount of urine. Do not expect a small miserable pulse; that does not make its appearance until the days of the days of the patient are numbered, for when the heart failure can be recognized by the pulse, therapeutic measures can no longer avert the impending catastrophe. In the type in which uræmia is the predominating feature, energetic diaphoresis alone can avail to prolong the imperilled life: when the uræmia advances slowly, by external diaphoretic means, hot air baths, hot packs, etc.; when the uræmic symptoms rise rapidly, when sopor and coma set in, by full doses of pilocarpine, subcutaneously applied; here it is well to add heart tonics by internal medication, such as strophanthus, better still, strychnine and alcohol. The second type of cases present, as the conspicuous feature, a gradual intensification of the subjective cardiac symptoms of the former stage; the attacks of dyspnoea are more frequent and prolonged, and accompanied by præcordial pain; the patient prefers to sit bent forward, elbows on knees, the head resting in his hands; the severer the dyspnoea, the deeper his head sinks, even to a level with the knees; he sighs or moans with every

breath; such cases are relieved only by narcotics in connection with heart tonics, and along with the latter, morphine must and can be administered fearlessly, with greatest advantage. Among the cardiac remedies I only found nitroglycerin (and in rare cases strophanthus) of real service. Against the dyspnoea, in so far as it is not due to mechanical crowding of the lungs by dropsical effusions, nitroglycerin is of really great service; use it in doses much larger than those usually given. The dropsy, which dominates the group of symptoms in the third form described, is controlled chiefly by catharsis and diuresis, for diaphoretics are seldom borne well, but the accumulation of serum can often be limited for a considerable time if it is possible to effect copious watery evacuations by the bowel. To increase the urinary excretion in this stage is indeed difficult, for direct diuretics, stimulating the kidney, are usually unsuccessful. Digitalis is much less certain in its action than it is in pure cardiac dropsies, and caffeine does no better, while strophanthus not only alleviates the cardiac symptoms in some cases, but often increases diuresis for a time; the same is true of nitroglycerin, and even more of the combined use of nitroglycerin and strophanthus, but not together. The diuretic action of calomel in cardiac dropsies is often powerful; the phenomena of the dropsy which occur in the last stage of contracted kidney agree with those of the dropsy from uncompensated valvular disease, in that calomel in some instances, at least, displays its diuretic activity after digitalis and all its congeners have lost their effect.

PROBLEMS IN TUBERCULOSIS.

BY WM. WORMLEY, M.D.

WHILE in all infectious diseases bacteria grow particularly in one organ or tissue, yet the successful control of the disease is not a local matter, but it must come by the action of the organism; partly by the leucocytes developed in the bone marrow and elsewhere, partly by other tissues, which discharge into the blood diffusible antitoxic and bactericidal materials. The recent observations of Wright and Douglass on the phagocytic activity of the leucocytes cover the point; these substances appear to be developed apart from the leucocytes, by other tissues of the body; now applying these propositions to tuberculosis, Adami points out that when the tubercle bacilli grow locally, there is a slow diffusion of their toxins, and it is by the adaption of the rest of the tissues to these toxins that the leucocytes and these other tissues become accustomed to produce diffusible antibacterial substances. Hence in favorable cases the local growth of the tubercle bacilli is arrested and healing ensues, and postmortem observations show that this arrest is the rule rather than the exception. The tuberculin treatment is only an attempt to carry out the natural process; tuberculin being merely a concentrated extract of the toxins of the bacilli. These now are injected into the organism at a distance from the site of local growth of the bacilli; and their action must be to stimulate the cells of the rest of the organism, producing increased amounts of antibacterial substances; but the cells are often in a state of low vitality so that they do not react, and hence this treatment is by no means constantly successful. Where no such substance is used the disease

is left severely alone, every attempt being made to improve the general tone of the organism by rest, good food, and fresh air; in this way the cells gain improved tone and respond to the toxins, producing increased quantities of the antitoxic and antibacterial substances. But it is the body as a whole, and not the local reaction that brings about arrest of the tuberculous process. The tubercle bacilli are capable of being modified according to alterations in their environment so that by passage they adapt themselves more and more to the organism of any particular species, but by passage through the organism of one species, the bacilli become more virulent for that species and thus may become less and less adapted to another species.

There is a growing prejudice against the hospitalization of tuberculous patients, suggesting the phenomena of reinfection and mutual contamination. Carnot has coined a new word on the same principle as superinfection—"supertuberculation." This process often is unnoticed, being confused with the idea of a previous infection. Relapses are often reinfections due to unhealthy surroundings; on this theory are explicable the sudden acute and rapid cases following slow ones. Carnot reports the case of a woman of sixty-two years where the necropsy showed lesions of two distinct types; at the apices there were old and partially cicatrized lesions; while in the genitourinary system were fine granulations particularly well marked at the base of the bladder. Shortly after her admission to the hospital the woman had been examined with a sound carelessly aseptically after having been used on a patient suffering from grave meningitic symptoms, who was subsequently found to have the same form of tuberculosis as that of the other woman's second attack. Carnot experimented on guinea pigs, first inoculated with a mild type of tuberculosis and later on with a more virulent type, which convinced him of the force of his theory. Carnot consequently pleads against the herding of the tuberculous in special hospitals, and advises isolation in the country, where air and sunshine are plentiful and there is plenty of elbow room.

The rarity of virulence of the blood in the course of spontaneous tuberculosis in animals and its transient character in experimental infection is remarkable. Positive results are reliable only when a large amount of blood is examined, and, whether the blood is tested by inoculation or by inoculation, the fibrinous clot is the part to be investigated; subcutaneous inoculation of a guinea pig with this clot, followed by the development of a specific adenopathy, even without generalization, is the only reliable proof of tuberculous bacilemia. Jousset studied the blood of 35 subjects and in only 11 could the tubercle bacillus be discovered, and these were mostly acute cases, hence he believes tuberculous bacilemia is as rare in chronic tuberculosis as it is common in acute forms. The bacilemia generally coincided with a continuous and high fever, and was never found in connection with the remittent, hectic fever, while albuminuria is nearly constant in case of this bacilemia. Symptoms suggestive of typhoid fever may be found in this bacilemia, with granulations in the intestines. Infection of the blood with the tubercle bacillus and arthralgias may constitute the entire disease, the prelude to the "tuberculous rheumatism with granulations" of Ponet. Dyspnea may be the only manifestation of the specific septicemia, while in one case it coincided

with the appearance of the bacilli in the blood and subsided as they disappeared. This dyspnea may assume the character of true asthma. The meningeal and cerebral forms of tuberculous bacilemia have not yet been studied; probably between the meningitis with actual granulations and toxic meningitis there is a phase of pure and simple bacillary infection of the nerve centers and their coverings. The bacilemia may terminate by elimination of the bacteria through the kidneys and complete recovery, or the bacilli may proliferate and granular implantation result. The localizations of the lesions in bacilemia may be legion, but the endocardium of the kidneys are the most common seats of infection.

Lannelongue has again emphasized the danger of exercising a joint, the seat of a tuberculous affection. Inoculation with pure cultures of tubercle bacilli, followed by traumatism of a joint, did not entail the localization of the infectious process in the injured joint; where the inoculation was made with pus or sputa, the traumatism invariably resulted in the production of a suppurative lesion in the injured joint. These results harmonize with what is observed clinically for the blood of a tuberculous subject is rarely virulent, and a local injury of a local focus of tuberculosis; a joint inoculation with tuberculosis remained latent or healed when the joint was kept at rest, but if it was gently mobilized, even for five minutes twice a day, the surfaces of the joint and the ends of the bones developed serious lesions and contracture in less than a month, but nothing of this sort occurred in the animals whose joints were kept at rest except for a single blow from a hammer once. There is an absolute necessity for immobilization of tuberculous joints, with or without extension, and Lannelongue emphasizes the evils of leaving a tuberculous joint free to be used at will, and especially the dangers of exercising the joint to increase its functional action.

Koch may be right in attributing minor importance to tuberculous milk and meat as the source of tuberculosis in man, but he was mistaken in denying the identity of human and bovine tubercle bacilla. Westenhoeffer suggests a new source of infection, for the infant may become infected during the period of the first dentition by putting everything it can reach in its mouth, while attendants rub its gums, and test the warmth of the milk by touching the tongue to it or putting fingers in it; the inflamed condition of the gums especially favors infection. The restless child is given its rattle from the floor or it creeps on the floor and then sucks its thumb for hours. The mother feels of its gums just after she has been, perhaps, washing the handkerchiefs of a consumptive husband. The profession should not wait for the child to be brought for medical advice, but should educate the citizen and all who have raised the anti-tuberculosis standard to surround the infant with hygienic care, transferring him to some other environment if necessary; the infant's hands should be washed a hundred times a day if necessary, and nothing should be given back to it which has once fallen on the floor; or, better still, not give it anything at all to bite on.

In careful study of the shape of the chest and its change in disease, especially in pulmonary tuberculosis, Brown and Pope learn that the measurements of the normal chest have not been determined with sufficient accuracy to allow of very positive data; for race, age,

occupation and altitude are factors that must be considered. The chief impression they gained from their study is that the chest, which is subnormal in its diameters and normal or supernormal in its length, is more subject to pulmonary tuberculosis, though whether in many cases the disease liability and the shape of the chest are not both results of the same conditions and not casually connected is an open problem. Influences which improve the development of the chest prevent consumption, and this may account for the relative immunity of the well developed chest. The antero posterior diameter of the chest in health may be stated to be about 20.5 cm. at the level of the nipples, the transverse diameter about 28 cm. In the early stages of pulmonary tuberculosis the anteroposterior diameter at the level of the fourth costal cartilage is about 19.5 cm., the transverse about 27. In advanced stages the figures are about 19 cm. and 25 cm. Pulmonary tuberculosis has a tendency to reduce the diameters of the chest and it seems as if it also reduced length; the relation of the diameters does not appear to have any prognostic value, as at either extreme there is no tendency in early cases of pulmonary tuberculosis to show an unduly large proportion of extreme indices. The change of index in pulmonary disease is probably not due to emaciation, but to change in bulk of the lungs; the chests of patients receiving sanitarium treatment showed that there is a marked increase in both expansion and respiratory movements, more striking in advanced than in incipient forms of the disease.

Norris examined all the postmortem records in a year at three hospitals, making a total of 7,040, and collected the data from all those which showed tuberculous lesions of the lungs, pleura, pericardium, heart and great vessels, with a view of studying their frequency and relationship; of these autopsies, 1,764 were tuberculous cases. His work was suggested by the teachings of Rokitsansky that valvular disease of the heart, especially when affecting the mitral or aortic valves, as well as aneurisms of the large vessels, hydrothorax and even scoliosis lessen the tendency to pulmonary tuberculosis; Norris has a suggestion that the increased resistance to tuberculosis in individuals with scoliosis probably exists not by reason of venous stasis, but because patients who have recovered from an attack of tubercular bone disease have usually developed an inhibitory capacity to tuberculosis of considerably greater potency than that possessed by an unaffected organism. The frequency with which tuberculosis of the lungs has been found to be associated with valvular heart disease, proves that the latter exerts but very slight influence, if any, on the former, either as an inhibitive or curative influence, even if satisfactory compensation is maintained, and considering the relative frequency of valvula lesions in general, mitral stenosis does not seem to be less often coincident with tuberculous disease of the lungs than other varieties of heart lesions. Norris found that stenosis of the pulmonary orifice, seems to favor the development of tuberculosis of the lungs, and a very large proportion of these cases die of the latter disease. The smallness of the heart may predispose to pulmonary tuberculosis to a greater degree than is explainable by the general systemic underdevelopment and lack of resistance which such individuals often exhibit; small hearts, either as a result of wasting or hypoplasia, are commonly found at tuberculous autopsies,

while large hearts are often encountered in uncomplicated cases. Arterial and endocardial thickening is a common result of tuberculous intoxication, but it is doubtful whether his process attains a sufficient degree to produce valvular incompetency. Tuberculous endocarditis and myocarditis, particularly the former, occur with considerable rarity, but pericarditis, especially the chronic forms, frequently owes its existence to the presence of the tubercle bacillus. The cardiac muscle undergoes various forms of degeneration in pulmonary tuberculosis fatty and fibroid changes being very common, a fact explaining the signal failure of digitalis and other heart stimulants in these cases.

A French physician, Blanck, has laid claim to fame, for he advises the use of the automobile by consumptives, for the rapid movement in the open air reduces the tendency to cough and improves the appetite, while it causes refreshing sleep, the motion acting as a sedative to the nervous system and the increased oxygenation assisting to the same effect. On the other hand, there are dangers such as the dust, which should be avoided, chilling of the cutaneous surface, and overdoing the exercise by excessive speed.

As to the possibility of the presence of tubercle bacilli in the urine of patients suffering from pulmonary tuberculosis, Maragiano, as the result of exhaustive researches, found that no tubercle bacilli could be found in the urine in such cases, but on the other hand, Sonder believes that the urine may contain tubercle bacilli, although the urinary tract is not affected, and the bacilli may pass through the kidneys in which they produce only a slight congestion, with traces of albumin with a few casts in the urine. To settle this dispute, Supino examined 102 patients with pulmonary tuberculosis; of these patients 41 were in the first stage, 26 in the second, and 35 in the third. A specimen of the twenty-four hours' urine, measuring 100 c. c., was centrifugated, and the sediment spread upon slides and stained by Gabbett's method, but the results being always negative. In another series, tartaric acid was used instead of sulphuric for decolorizing the specimen, but this method too gave negative results. Hammond's procedure, consisting of mixing an equal volume of five per cent. carbolic solution with the urine, shaking, and allowing to stand for an hour, was also tried, but the sediment did not contain any germs. The method, recommended by Trevichick, also gave negative results; this method consists in washing of the sediment four or five times before it was dried and stained; Supino found that by repeated washing the sediment was sometimes wasted. Supino concludes that the examination of the urine for tubercle bacilli cannot be employed in the diagnosis of pulmonary tuberculosis, and that the examination of the sputum is much more satisfactory; the negative results in the urine being explained by the fact that patients with tuberculosis of the lungs alone do not show any tubercle bacilli in blood or urine.

Mayo has reported 4 cases of tubercular peritonitis in the upper abdomen which recovered after laparotomy with removal of the fluid, in which the source of infection could not be located in the limited examination then made, although many adhesions were found about the region of the gall bladder, pylorus and duodenum. The failure of all methods in vogue for the treat-

ment of this condition has led him always to search for the original lesion and to remove it, leaving the peritoneal condition to cure itself, closing the abdomen without drainage. The source of the disease may come from congestion, increased matting of the miliary deposit or increase of general adhesions. Tuberculosis of the vulva, vagina and cervix is not a common disease, and tuberculosis of the uterus is uncommon during menstrual life, being found before puberty and after the meno pause. The increased percentage of cases of tubercular peritonitis occurring in women from tubal involvement has been noted by Mayo, and even when the tube appears in fair condition; drying the peritoneum and closing the abdomen resulted in a primary cure, yet some patients later appeared with pelvic masses and a second laparotomy with the removal of caseating tuberculous tubes followed by permanent recovery. If the general condition is such as to render operation extremely hazardous, operation must be refused. In males Mayo makes the incision over the appendiceal region, while in women it is arranged to explore the pelvis; a tubercular appendix in an early stage, before miliary deposits appear, may at times be diagnosed at operation by the large size of the glands of the mesenterium. Do not open the bowel in separating the plastic adhesions of the intestine; it is best to keep close to the parietal or pelvic peritoneum, separating as few adhesions as possible in exposing the region affected. The tubal enlargement can be pierced in some cases and its entire contents of caseating debris and lupoid material removed, leaving the outer fibrous and peritoneal layers behind, then applying iodine or iodoform emulsion in glycerin to the diseased area, closing the abdomen without drainage. The Mayos have operated on 26 cases of tubal origin with only 1 death. They have performed 59 operations for tubercular peritonitis by the older methods; 42 were cured, 15 improved, and 2 died. There were 58 operations for the removal of tubercular tubes, with 56 recoveries and 2 deaths; and 27 cases of tubercular appendicitis without any mortality.

In making a diagnosis of tuberculosis of the kidney, Kelly mentions the following problems:

1. Is the organism found the smegma bacillus? How was the urine secured? Was it by voiding or by catheterization?
2. Given the tubercle bacillus in the mixed urines, from which side does it come? Determine by catheterization the appearance of the ureteral orifice and the thickened ureter.
3. Is the opposite side entirely free from disease? Bear in mind that a simple pyelitis is not infrequent in the opposite kidney.
4. Bear in mind that the opposite ureter may show marked thickening (periureteritis) and yet the kidney be free from tuberculosis.
5. Note carefully to what extent the bladder is affected as having an important bearing on the operation and the subsequent treatment.
6. Determine the urea coefficient of the opposite kidney. Is it able to support life?
7. Look carefully for disease elsewhere. Is there a tuberculosis of the genital organs? Is there any pulmonary or glandular tuberculosis?
8. In injecting guinea pigs remember that tubercle bacilli may pass out of the bladder. If your patient has phthisis, without injury to the kidney.
9. Remember that the enlarged kidney found in the loin may be the one func-

tionally enlarged and, therefore, the only sound organ. Twice has such a kidney doing all the work of the body been taken out. There is a great risk in making this mistake.

As to the use of sugar in tuberculosis, Massalongo and Danio, of Verona, on the subject of over feeding in tuberculosis, find a method which has given results far beyond expectation in the overfeeding of patients with sugar; ordinary sugar is not only a promoter of heat, but also a dynamogenous food which is well adapted to the requirements of the consumptive. They recommend large doses, from 100 to 500 grammes of sugar daily; in other words, from 5 to 12 grammes of sugar per kilo of body weight; the patients gain weight rapidly, in some cases faster than the actual weight of the sugar ingested would suggest, never suffering from fermentation or other gastric complications. Sugar gives the best results in the febrile cases, and it may be diluted with milk or disguised with coffee or bitter tinctures.

Even on as little as from 100 to 200 grammes a day the patients frequently gained from 16 to 30 pounds or more in two or three months, being generally relished and well tolerated by the patients, and no dyspeptic disturbances or intestinal fermentations were ever noticed that could be attributed to the sugar.

For patients who are unable to take cod liver oil, it will be found a desirable food and remedy as well as in many other cases.

Latham has used Marmorek's serum obtained from Marmorek, and he concludes that when given in carefully graduated doses with proper precautions and in suitable cases it does no harm at least. His experience tends to show that it does produce a specific antitoxic effect, and an extended trial should be made, but it must not be forgotten that great care must be exercised in the administration, and it should be continued for a considerable period before definite results can be expected. He injected it under the skin in doses of 10 c. c. every day for a number of days, following this by an intermission and giving it again in reduced dose; now he uses a dose of 5 c. c. for four consecutive days followed by three days of rest, having two or three repetitions of this, but after the third series giving at least two weeks' intermission. He thinks he has seen patients improve during periods of intermission, but his tone is not very positive.

After all, the "climate-cure" is our sheet anchor as yet; the factors of the problem of cure or arrest being: (a) The resisting power of the organization and the influences or conditions which tend to modify that resisting power. (b) The virulence or activity of the specific organism causing tuberculosis and the influences or conditions which modify it, and retard or assist its development, either without or within the body. Equally important is the environment of occupation, of clothing, and of personal habits; but the correction of faulty conditions in these regards unaccompanied by climatic change is generally futile. Until climatic environment is made favorable, the human organism is at a disadvantage in its battle against the bacilli. The anti-tubercular climatic conditions are, according to Munn: (a) Prevent the development of tuberculosis; and (b) Exercise an ameliorating or curative influence upon al-

ready existing tubercular lesions. These favorable climatic conditions are: (1) Dryness. (2) Sunshine. (3) Purity of atmosphere. (4) Rarity of atmosphere, within certain limits. (5) Equable and moderate temperature. These favorable conditions exist in an exceptional degree and over an extensive territory upon the eastern slope of the Rocky Mountains, in the State of Colorado. The invalid suffering from pulmonary disease still finds difficulty in obtaining from his medical advisers reliable information, or valuable advice in regard to the proper regions in which he is to seek natural conditions that will retard his disease and effect its cure. It may not be out of place, as Munn has emphasized the fact personally, that residence in Colorado does retard or cure pulmonary consumption; as a further example of the frequency of such cures, Munn cites the fact that there are forty physicians having offices within a block of his residence in Denver, and of this number twelve, or 30 per cent., were consumptives prior to coming to Colorado, but are now in vigorous health, engaged in active practice. Five more of the forty are in Colorado because their wives became consumptive in the East, and all are now in good health. The desirable climatic conditions in Colorado are as follows: (1) Dryness; years ago this element of climatology was so misunderstood and overestimated that 103,000 square miles of Colorado was considered to be desert land: sandy, uninhabitable and unfertile; this misapprehension was based upon the lack of rainfall. It is true that the rainfall is inconsiderable, especially when compared with that of the Atlantic Coast and of the Ohio and Mississippi Valleys. In Denver, for example, the average total annual precipitation for twenty years, which includes both rain and snow, has been but fourteen and one-half inches, while in New Haven, Connecticut, it is fifty inches; in Washington, D. C., 44.8 inches; in Atlanta, Ga., 55.9 inches; in Jacksonville, Fla., 56.3 inches; in Chicago, 36 inches; in New York, 45 inches; in Philadelphia, 41.2 inches; in the State of Washington there are points where the precipitation is 92 inches per annum, and in the foreign resorts, as Florence, Italy, it is 41 inches; in Genoa, 47 inches; in Geneva, 32 inches; in Naples, 30 inches; and in Algiers, 27 inches. The wettest place on earth is Assam, Asia, where the average annual precipitation is 610 inches, and in 1861, it was 905 inches. The average rainfall for the whole world is said to be 36 inches per year. When these figures are considered, it is readily seen that Denver, with 14.5 inches rainfall per year, is, relatively, a dry location, and it must be remembered that Denver has the greatest amount of precipitation of any location in Colorado. The therapeutic value of a dry atmosphere is threefold: (a) It antagonizes the vitality of the bacillus, and (b) It takes up more moisture from the lungs in respiration, thus removing a greater amount of the toxic results of respiration, and lessening the volume of expectoration. (c) It assists elimination from the skin, promotes thirst, and by thus stimulating the patient to fill his blood vessels, promotes the activity of all the emunctories.

The rarity of atmosphere varies with altitude; in its 103,000 square miles, an area almost as great as that of Italy, half as large as France, and seven times that of its great climatic rival, Switzerland, Colorado has an

unsurpassed range of altitude, 3,000 feet above the sea level on the east, to 15,000 feet among the peaks of the Rocky Mountain range. The broad, high plateau on this side of the mountains rises so gradually, that while it seems almost level, it attains at Denver an altitude of one mile above the sea level.

Reliable statistics as sunshine have not been accessible until lately, due partly to defective equipment of observers, partly on account of defective methods of stating the results of observations for even what constitutes a sunshiny day has always been a matter of dispute, but in 1891 the weather service adopted the method of making photographic notes of actual hours of sunshine. The records are now beginning to be of value, although the limited number of stations at which such observations have been taken interfere with any extensive comparison. In 1892, Philadelphia had 2,263 hours of actual sunshine out of a possible 4,618 hours of possible sunshine; in the same year Denver had 2,858 hours of actual sunshine out of a possible 4,594 hours, the sun shone brightly during 62 per cent. of the time which was possible. The difference between 49 per cent. of sunshine and 62 per cent. of sunshine is an enormous difference. The actual excess of hours of sunshine in Denver approximate almost two hours more of sunshine every day in the year than in Philadelphia; to the consumptive this extra amount of sunshine means very much in increasing the daily time during which he can remain out of doors, which is what every consumptive ought to have. To travel hundreds or thousands of miles for the benefit of disease by climatic environment and then to coop up one's self in rooms where the artificially generated conditions are probably as bad as, or worse than those of home, would be absurd were it not tragic.

Pulmonary invalids must take proper advantage of natural conditions; out-door life, fresh air and sunshine, are more efficient in Colorado than in most other localities in this country, but it must be used with persistent intelligence.

Colorado physicians recommend their consumptive patients to seek a residence in the suburbs, if they must remain in Denver, but as a rule, they are advised to get out of the city, if possible, for ranch life, or in a mining camp is preferable to life in a city, if one can only secure the necessities, and a few luxuries of life. The incipient consumptive who deliberately gives up his regular occupation or profession, and goes to "punching cows" for two, three or four years, is practically certain to effect a permanent recovery, and to gain as well an experience as unique and as valuable to him as is his restored health.

Climatic influences are not strictly curative, but they simply tend to retard or arrest the progress of the disease. Some infiltrated areas may open up again, become pervious, assist in respiration, and finally become perfectly healthy, but the greater part of the pulmonary tissue is already involved, remains so; but it becomes isolated, the disease process is no longer aggressive, but is put on the defence, its area slowly lessens, its infective element dies, and finally fibrous change sets in, converting the enemy's camp into an innocuous ruin. The constitution under the influence of favorable environment triumphs, but it is not strictly accurate to denominate this triumph as a

"cure"; it is a recovery. This recovery takes time, for from three to five years is the ordinary duration of a fatal case of consumption, while from three to five years is the ordinary duration of the process of recovery under favorable climatic conditions. True, there are exceptions, both as to rapidly fatal cases under unfavorable circumstances, and rapid recoveries under favorable circumstances. But rapid recoveries are far more rare, and far harder to prove than are rapidly fatal cases. Now, what is the practical meaning of this statement of the time necessary for recovery? It means, for nineteen out of twenty, who make change of residence, that the change must be a permanent one. Five years in a new country means, for all who are not exceptionally fortunate (or unfortunate) new social and business relations which may preclude the possibility of return to the old home, or which, at least, render such return unadvisable. We must remember, too, that return means too often, resumption of former occupations, renewal of old habits, entrance into old surroundings, which are unfavorable and which tend to cause a second attack, as they probably contributed to the first one. It has been the universal verdict of Colorado physicians of wide experience that second attacks of tuberculosis following apparent recovery due to residence in Colorado, are generally fatal. Patients who imagine themselves entirely well because a few months have elapsed without serious symptoms, insist upon returning to their Eastern homes to arrange business affairs, to make visits, or to resume their occupations, and the arguments, protests, and warnings are without avail, the return trip is made, the predicted relapse occurs, and before the season is out they are back, vainly seeking the second time for the gratifying improvement that occurred during their first visit. The patients with far-advanced disease of both lungs and with death plainly stamped upon their faces, that the most casual observer should make the correct diagnosis, and the certain prognosis, who are sent away from home, relatives and friends, upon an illusive chase after strength and health, with their respiratory area so lessened in extent, have the inevitable end only hastened in the rarer atmosphere, as Munn points out. And far worse is the fact that such fatal results frequently deter really suitable cases from making the essential change of location. It is a regrettable truth that Eastern physicians are in many instances responsible for such exhibitions of bad judgment; again, the diagnosis in many consumptives has been made inaccurately. Indefinite "lung trouble," "bronchial catarrh," "catarrhal cough," "simple laryngitis," are among the disease names that are applied in a majority of instances to undoubted cases of pulmonary or laryngeal tuberculosis. Many patients of this class make a short visit to Colorado in spite of the advice of some physician, who assures them perfect recovery if they "take medicine." There is another class of patients, who, either from lower resisting power, or because of concentration of the specific pathologic factor, do not recover in Colorado, although they come as early as is possible, and follow as conscientiously as possible the most approved methods of life and treatment. These cases are not infrequently seen. It may be said that it is probable that they

are of the class which in unfavorable environment would be denominated "acute phthisis." Although the climatic influences are not potent enough to permit patients of this class to recover, the favorable conditions exercise a retarding influence upon the progress of the disease. Not uncommonly, persons, whose condition is such that six or eight weeks would be the utmost limit of life at a low altitude in a humid atmosphere, are enabled to live in comfort and to enjoy life for from six months to two years in the dry, invigorating atmosphere and warm sunshine so constantly present at an altitude of from 5,000 to 7,000 feet.

NUTRITION THE AIM AND END OF ALL ORGANIC PHENOMENA.

BY F. B. BRUBAKER, M.D.

PART I.

IF we should draw a circle whose diameter is measured by circumstance and whose base is the level of the sea, and if therein we should erect cloud-towering heights snow capped and desolate, and should at varying elevations mark the progress of vegetation as it actually exists and corresponding to its progress in different latitudes, keeping in mind at the same time that animal life is likewise so classified, we should in imagination erect a mount of environment.

Observers who in short periods of time have passed over vast tracts of land and ascended lofty mountains in which climates were arranged as it were in strata one above another must have been early impressed by the regularity with which vegetable forms are distributed. The same zones or regions of vegetation which in the sixteenth century Cardinal Bembo described on the declivity of Aetna were observed on Mount Ararat by Tournefort. He ingeniously compared the alpine flora with the flora of plains situated in different latitudes and was the first to observe the influence exercised in mountainous regions on the distribution of plants by the elevation of the ground above the level of the sea and by the distance from the Poles in flat countries. Menzel, in his work on the flora of Japan, accidentally made use of the term, The geography of plants, and a scientific treatment of the subject began when this fact became associated with the study of the distribution of heat over the surface of the earth and when the arrangement of vegetable forms in natural families admitted of a numerical estimate being made of the different forms which increase or decrease as we recede from the equator toward the Poles and of the relations in which in different parts of the earth each family stood with reference to the whole mass of phanerogamic indigenous plants of the same region.

The study of the geographical distribution of animals regarding which Buffon first advanced general and in most instances very correct views, takes on much of the law governing that of the same distribution of the flora of a country. The curves of the isothermal lines and more especially those of the isochimeneal lines correspond with the limits which are seldom passed by certain species of plants and of animals which do not wander far from their fixed habitations either with respect to latitude or elevation, and so it is that a

contemplation of nature as so admirably expressed in organic development is indissolubly connected. True, seemingly vast gaps are at times wont to occur, and the region of a flora or fauna identical yet widely separated and with entire absence in intermediate stations present themselves to our gaze. Tournefort first remarked and Humboldt, the great organizer of the science of natural history geography demonstrated, that zones of elevation on mountains correspond to parallels of latitude the higher with the more northern or southern as the case might be. Thus air and water are animated at different temperatures by the presence of vital organisms, and the influence brought about by the diffusion of life throughout the realms of nature, is common to every zone. The local distribution of plants embraces almost all heights and all depths. Organic forms not only descend into the interior of the earth where the industry of the miner has laid open extensive excavations or sprung deep shafts, but snow-white stalactitic columns are oftentimes found encircled by the delicate thread of an *Usnea* in caves where meteoric water could alone penetrate through fissures. *Podurellæ* penetrate into the icy crevices of the glaciers of Mount Rosa, the Grindelwald, and the upper Aar, while the microscopic *Discocera Nivalis* exists in the Polar snow, as well as in that of our high mountains.

Standing on the summit of our imaginative mount, the contemplative view meets no horizon, and at the feet of the beholder lies eternal snow, nevertheless, life is here expressed in microscopic organisms, and in the residuum obtained from the melted ice, upward of fifty species of *Polyasteria* and *Coscinodiscæ* are found swimming about, and therefore living and able to resist the extreme severity of the cold. Then breaks upon our view the region of Lichens, leathery, woody, and leaf-like, white, yellow, green, and black, clinging to rocks immediately below the line of perpetual snow. Then vast forests of Pine and Fir, whose acerose leaves are nature's adaptation to the violence of the tempest and weight of snow. Then begins the region of grasses which include nearly one-sixth part of the whole vegetable world, and cover the earth as with a carpet; with herds-grass, meadow-grass, orchard-grass and oats; with wheat, rye, barley and Indian-corn, all bearing large and munificent returns by the side of the peach, the apple, and the pear. Then falls upon our view the regions which produce the wine grape, having a mean annual temperature of fifty degrees on its northern, and fifty-nine degrees on its southern border. Then the region of figs and olives, below which grows the cotton plant, peanut and myrtle, and so on down to palms, spices, sugar-cane and the luxuriant vegetation of the tropics. While from the same height one beholds the varying forms of animal life graduating the one into the other, these varying zones of organic existence intertwine in a bond of union, and hold nature's law supreme.

But this bond of union is first manifest in the earth itself, and in those forces we call inorganic, which by variability of molecular constituents, produce variability of organic development, the two being inseparably related and bonded. But the union into one organic whole of all living organisms, results as a natural deduction of the identity of protoplasm yet

with the underlying possibility of being moulded to any height.

Into one organic bond of union, therefore, our contemplative view finds no escape. A bond that ascribes all organisms to a common state or condition, whose presence is life, and whose absence is death, viz., nutrition.

If we should attend to an examination of the seed of plants and should strive to separate into its component parts the forces contained therein, we should find two diametrically opposite factors presenting themselves, the one the nucleus, being reproductive and the other the integument, being nutritional. The embryo first appears as a minute speck in the midst of the pulp of the nucleus, near the foramen of the ovule, it gradually develops and assumes an organic state, it lies in the midst of the albumen, or at some of its extremities, or when there is no albumen, it fills the space within the integument. But the eggs of birds or reptiles best illustrate this fact, for here as in the seed of vegetable life, the germ lies imbedded in and surrounded with albumen, and in either case this has one important function, viz., that of rendering sufficient nourishment to the germ, which enables it to develop to a point where it depends upon more external means, and therefore independent. This is likewise true of the animal scale, therefore we would at once say that the first act or quality upon which all of organic life depends when once it sets forth upon the stage of existence as an independent being, is nutritional.

Little is known concerning the primary origin of organs and their development before their assumption of the aspect and function by which we know them, the most we do know being that protoplasm is formative, and will functionally develop in whatever direction led, providing however it ultimately subserves some good purpose, so that it matters but little or not at all, whether the cells of a structure formally acted in the capacity of several functions which gradually became separated, or always as one function only, and became highly specialized in both or either instance. In the course of embryological development organs do not exactly repeat the successive phases through which they passed during their ancestral evolution. Generally speaking, and especially in the case of plants the development of organs in an individual is direct and gives no clue to its ancestral history; moreover, when there is a recapitulation of ancestral stages, it often happens that evolution takes place without leaving traces of the various stages. This is especially the case in complex organs, which have been produced by many lines of evolution, converging in a single structure, which thus becomes the seat of a special function or set of functions. Protoplasm being formative, the single cell in itself is capable of being led successively to all structures, and therefore functions to which organic development has given birth.

Loeb has shown that in certain groups when the organism after having been wounded is subjected to unusual light, position, or pressure, organs are formed at the wounded part which are essentially different from those which would have been formed in a normal recovery. Now when this heteromorphosis occurs in

certain groups of animal forms, the position of the oral and apical poles may be transposed, and the same may be said of certain vegetable structures when placed upside down in earth, similarly there is a true metamorphosis when in a case of club foot the faces and articular surfaces of the bones and cartilages, assume characters adapted to the new work thrown on them, as the abnormality of the joint increases. Another case is in the false joints sometimes formed when the two parts of a bone do not unite after fracture, in that case, a completed joint with cartilage, ligament, and synovial membrane may be formed in the neighboring tissues, under the influence of the new stimulus. In extrauterine gestation the placenta is formed upon some abdominal organ, and when this occurs, the unusual stimulus is sufficient to cause the cells of an abdominal organ to form a perfectly specialized organ of a nature foreign to their normal life.

The study of the morphology of any organism not only recapitulates the life history of that organism, but at the same time brings to view the overlying law of development, at which all organic forms terminate. True it is that this law is oftentimes hidden by a complexity of detail which causes us to wonder at the accumulating contradictions, yet which must and do vanish under the law.

Apparent simplicity marks all cosmic phenomena, and the law of development forms no division of the inorganic from the organic. Morphology teaches that most organs of a plant, including the bracts, sepals, petals, stamens, and pistils, are but modifications of leaves, and it likewise teaches that the hand of a man, the forefoot of a mole, the leg of a horse, the paddle of a porpoise, and the wing of a bat, are all only modifications of one type. All these organs tend to, and ultimately subserve one great cause only, and find their exact counterpart, both as regards structure and function, in the single cell organism whose pseudopodia in all cases, act as do the arms and legs of other organisms, viz., locomotion and the grasping of food particles. But a study of the aim and end of all organic phenomena would be necessarily incomplete if we failed to examine more minutely into the subject. A remarkable parallelism runs coincidentally through vegetable and animal structure, and we have before this time spoken of the fact that the circulation of sap in vegetable fibre differs in no material respect from the circulation of the blood in animals, both being composed of water laden with nutritive principles. But before this becomes possible an undeniable preparation of these food elements is necessary in both. Therefore an endless cycle is manifest in both, beginning with digestion.

In their very young state, all the modified leaves upon a given plant are indistinguishable from each other, the leaves which are to become petals, stamens, leaf-traps or tendrils, are like those which are to be ordinary foliage, and the same is true of the modified stems and modified roots, however diverse in shape and function the modified stems or branches of a plant may finally be, they are at their very beginning precisely alike. A classification of tissues upon the basis of physiology alone, is open to serious objection; one kind of work in a plant can be performed by

diverse tissues, and on the other hand one kind of tissue can perform more than one kind of work. This is illustrated by the structural elements through which mechanical ends are reached. The long bast fibres, woody fibres, collenchyma and short sclerotic parenchyma, very diverse elements but accomplishing the same result, yet one of these, viz., the woody fibres, is among the most important of the elements by which crude liquids are carried through the plant; moreover, in the examination of the minute structure of a part it is not easy to determine between the different offices which one of its given elements may fill, because the element is associated with so many others in the formation of a complex organ. It will thus be apparent that the highest structure of vegetable life is physiologically not highly specialized, neither indeed do we find great specialization in the lower order of the animal scale, and in this respect the invertebrata may be compared to the higher vegetable.

But an undoubted design is nevertheless apparent in all organic structure, for as we learn by an examination of protoplasm itself it is endowed with unchanging properties first of which, no matter where it builds, being the absorption within itself of nutrient properties; consequently in their preparation digestion, or its equivalent, stands paramount. The absorption of water laden with these food principles is therefore absolutely essential, whether by root, lead, or what not. Lately experiments have proven that a tree whose roots are diseased may be artificially nourished by injections into and under the bark of the trunk. The dissolving of inorganic substances by water permeating the soil whereby proper food elements are brought into direct contact with the root hairs, and the direct absorption of nitrogen from the air are therefore nature's first step and second to environment, whereby she preserves from death her vegetable forms. This therefore we would liken to the process of digestion in the animal scale. The dissolving of the inorganic elements being strictly so, both being a process whereby raw materials are modified and rendered fit for absorption, in fact no sharp line of demarkation divides the same, and the two great kingdoms assuredly overlap, for here as elsewhere, many of the lowest animals are comparable to the lowest plants. The mode of nutrition among the lowest animals is not uniform, a fact which ought not to appear remarkable, when we bear in mind that these animals are made up of all manner of heterogeneous beings, that have nothing in common save the microscopic smallness of their bodies and the simplicity of their structure.

The first type of nutrition or digestion, is found in animal cells that contain chlorophyll, and are nourished by assimilable substances from ingredients taken from the medium in which they live. It should be borne in mind that the function of chlorophyll in the animal as well as in the vegetable kingdom, is essentially that of nutrition. A large number of the lower animals contain chlorophyll. The Protozoa, therefore, having no differentiated parts, the cell itself performs among other functions, that of digestion. This function is diffuse in the lower animals, and only becomes specialized or differentiated as we ascend in the zoological scale.

INFANT MORTALITY: RACE SUICIDE IS NOT SO MUCH A QUESTION OF MORE BIRTHS AS OF LESS DEATHS.

BY CHARLES E. PAGE, M.D., BOSTON.

THE subject of infant mortality is a very painful one to me, and it has been the chief study of my life for many years past. Forty-two years ago, at the age of 26, I married a healthy girl of 22. Our three children all died, the eldest at five. Our family doctor was one of the finest of men, honorable, sympathetic, and conscientious; but as I have come to know, his knowledge of the hygiene of infancy and of how to conserve life was practically nil. It was this sad experience that impelled me to undertake the study of medicine. In scanning the mortality reports from week to week I found that on the average about one-third of all deaths were of children under five, and that about two-thirds of these were of infants under one year. During the heated term of summer the proportion of infants and children dying was still greater. As I noted the way in which the little ones everywhere were treated I found that it was on the same order observed in my first family, and I finally concluded that it must be fearfully wrong. During the past twenty-five years of very busy practice, I have proved over and over again the truth of that conclusion. Why should we imagine that even the brightest and in general most capable girl could, from simply getting married and having a baby, become at once the mistress of all wisdom as to the nature and needs of new-born infants? But, the family doctor! Speaking generally, it would be about all his practice was worth to insist upon any radical change in the prevailing manner of dressing and feeding the baby; matters that the mother, grandmother and nurse regard as their own affair, and he would thus be handicapped, even supposing him to possess all wisdom along these lines. As I remember our old family doctor never sought to dictate in these matters. He had perhaps learned from experience, as I have since, that only those parents who have suffered the loss of children are anxious to learn and adopt better methods; although he was a frequent visitor, our babies were stuffed and flannelled to a finish, just as is still going on all around us. Young mothers have no wise teaching as to the proper management of their little ones, and it seems almost as though the middle-aged and older women learn little from experience. Many mothers make it a question of "playing doll" with their babies, and like the little girl with her make-believe baby they try to see how much clothing they can pile on, making very little difference between summer and winter garb; and, as for that, we might well consider that in hot, and usually over-hot rooms it is practically "summer" all the year round and, consequently, that these little naturally naked animals should be very lightly draped at all times except when exposed to the cold. As it is, however, the skin is sweltered and, although a true breathing organ, it is "smothered"; and the hotter the weather and the longer it lasts the heavier the mortality. Of course, bad and over feeding plays its part in this havoc. Babies are apt to be fed as freely in hot, as in cold weather, although none of us at any age can digest and assimilate anything like as much food in summer as in winter; and besides this, adults

as a rule, use a very much modified diet in summer, having all the seasonable fruits to fill up with, and this gives grown people a great advantage over babies, especially bottle babies. Another point: babies are kept too much in arms; they are not allowed enough freedom to sprawl and kick and strike out on rug and lawn, their outings being almost exclusively in the baby carriage, sitting bolt upright—an altogether unnatural and mischievous position—and for want of enough natural exercise of arms and chest they don't half breathe; and the muffled skin doesn't breathe at all, and hence there is to a degree actual oxygen starvation. It is of course all the worse if the living and sleeping rooms are over-warm and insufficiently ventilated. If mothers were really wise along these lines their healthy-born babies would have scarcely a higher death rate than kittens and puppies that only die from drowning.

It is not more births but less deaths that is needed to prevent all danger of race suicide. Nor, in my opinion, will cooking the baby's milk tend in any degree to promote its health; far from it, since milk is thereby made less nutritious, as is true of all foods that are agreeable in their natural state. As for the digestibility of cooked as compared with raw milk, it should be more generally known that the stomach, like every other organ, requires exercise in order to maintain its normal vigor. To use it merely as a tunnel for sluicing either undigested or "pre-digested" food substances into the intestines is to enfeeble that organ and to promote danger of blood-poisoning from the absorption of putrescent material into the circulation.

My present family consists of wife and five children, the children from five to sixteen years old, and none came anywhere near dying either in infancy or since, having been reared on quite contrary lines from what proved so disastrous with the children of my first wife, who herself fell a victim to the same general lack of hygienic knowledge on my part. During the first ten or twelve years of their life they were always barefooted all the year round, indoors, and during spring, summer and fall, outdoors. In infancy during the hottest of summer weather they were kept much or the time naked, and always scantily draped while indoors. None of them ever wore flannel underwear, never a belly-band, nor was ever one of them diapered in the sweltering way still in vogue with young infants. Our way of feeding (they were nourished by the breast up till twenty to twenty-two months) and managing made diapers practically unnecessary, except when going abroad during the day. Several diapers placed appropriately better guarded the bed from wetting than when used in the ordinary way, and were more readily changed. The newcomer was placed on its belly in cotton nightgown on a hard hair mattress, no pillow; none was ever put on its back for any length of time, day or night. None was ever in the sitting posture, except for brief periods in the carriage, until well along in months, nor even then encouraged to sit very much. They all crept at a very early age, having been unhampered by clothing and given full chance on the rug much of the time when out of bed. Our oldest, a daughter, now in her seventeenth year, five feet eight inches, 125 lbs., crept at seven weeks. At four to six months they were all climbing upstairs and backing down, the latter trick having been taught them as soon as they reached the point of climbing

up. I came near getting into trouble with this young lady during her first summer. I would often bring her down to the sitting-room in the "altogether" for the entertainment of our visitors during June, July and August (she was born June 14th); and it chanced that one dear humane lady who had heard about my brutal treatment of the dear babe visited Father Fay of the S. P. C. C., here, and entered a complaint against me. The dear old lover of children listened calmly to the story, and then reached for a copy of my book on Babies ("How to Feed the Baby," etc.), and turning to the appropriate page, read the dedication, "To the Society for the Prevention of Cruelty to Children," and quietly assured his visitor that if Dr. Page's baby got frost-bitten during the summer he would have him taken care of! Our babies were weaned on cows' milk, raw, and Persian dates; at first a single date after the bottle portion. As children the chief part of all their nourishment has been derived from nuts, dates, figs, bananas, and the various juicy fruits according to season, and this is at present the chief part of the diet of us all. The children have always been remarkably free from "colds," catarrhal troubles, digestive disturbances, etc., etc. It is my firm belief that there isn't another family of children in the wide world that enjoy eating, that take their three meals a day, and every day, with such pleasure and satisfaction as this Page quintette, unless they are fed on the same principle. They have no catarrh nor bowel troubles, and the fecal dejections are not malodorous from putrefaction of cooked stuff, as is so common with meat and mush eaters, and so suggestive of blood-poisoning (autotoxemia), "malaria," typhoid fever, etc., etc. Again, in feeding them on what I esteem the natural diet they eat naturally, requiring no nagging as to the way to eat; no "don't eat so fast," "chew your food," etc., which is so agonizing to both parents and children when it is a question of the ordinary food, as the cereal and vegetable mushes, bread and butter, etc. But this is going deeper into the question of dietetics than I had in mind at the opening of this paper.

None of our children has ever slept in a shut-windowed bedroom, be sure; nor are our living-rooms ever closed to the free ingress of fresh air, as we all hold to the doctrine formulated by Dr. Felix Oswald as follows: "To save foul air for the sake of its warmth is poor economy." It has been my good fortune to help many mothers rear their babies in comfort and health, not alone in the ordinary capacity of family physician, but by correspondence all over the country and even in England, the little book which has been selling in large editions during the past twenty-five years being the cause of this unusual state of affairs. The chief points to observe in order to give a babe a fair chance for its life are, as I have found, about as follows: food to the extent of the child's capacity for digestion and assimilation, but nothing for mere fattness. All healthy younglings remain throughout the growing age slender; we observe this everywhere. Kittens, puppies, calves, and even pigs are examples of this law. The farmer who understands the secret of raising the biggest hogs never allows the growing pig to become fat; "it stunts his growth," he is apt to say. Other things equal it is the fat baby that melts away and dies and not the

slender one.

It is, of course, universally known that the only natural diet of the human infant, and the diet that gives it a strictly fair chance to thrive, is the breast. I believe that the great majority of mothers really desire to nurse their babies, and many more of them would be able to if more natural treatment were accorded them. One grand mistake is very generally made, as it appears to me, that of compelling the mother to remain in bed for a stipulated time, usually about two weeks. It often happens that a mother who feels equal to being up and about in a few days, sometimes even on the second day, is enfeebled by being treated as a bed-ridden sick woman and can with difficulty rise from bed after a fortnight or more of this enforced invalidism. Lying flat on the back, itself an altogether unnatural position, bereft of all exercise, and usually the victim of forced-feeding, like the dairyman's cows "driven" for a big yield of milk, it is not surprising to the thoughtful student of this question that so many mothers finally have to forego the pleasure of nursing their babes because of "complications" for which this mistaken regimen is to blame. One intelligent physician has recently made reference to the malposition above named as altogether bad for drainage, and to my mind this is a point well worth considering.

Clothing: Except when it is a question of guarding the young one from actual cold we should consider its covering as drapery only, and make it as light and of as few layers as possible, so as not to impede its movements of body and limbs nor the free exchange of carbonic acid for oxygen which goes on wherever the blood-vessels of the skin are in contact with the air. I learned long ago that it is safer for any of us, old or young, to be too cold than too hot—to shiver than to sweat—and that the skin's natural physical culture is properly regulated shocks of cold and heat. The more frail and delicate the new born babe the more essential it is to understand and practice this principle. The more robust ones may stagger along under an excessive burden of food and flannels and make a live of it, finally, though even these are, as we all know, subject to what we have come to regard as almost necessary "infantile diseases," but which in days to come will be regarded as disgraceful to physician and attendants. Sir Frederick Treves said the other day (as cabled over from London): "I look forward to the time when the people will leave off the extraordinary practice of taking medicine when they are sick, and when it will be as anomalous for a person to die of scarlet fever, measles or diphtheria as of a wolf bite in London!"

A public institute for mechano-therapy has been opened at the German Hospital; it is the first of its kind in the United States. This new department is for laborers, artisans or any workman who has sustained a fracture, or a joint or muscle injury. The stiffened joint or lame muscle can be restored to working capacity in the shortest possible time. Medical gymnastics by means of wooden apparatus will be scientifically applied. In Germany there are now 836 hospitals, sanatoria and private physicians using these machines for mechano-therapy, besides 33 military hospitals and 15 universities.

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THE MEDICAL SCIENTIST AND THE PRACTICING PHYSICIAN.

THE status of pathology, physiology, bacteriology, organic chemistry, etc., as compared with clinical medicine, has altered greatly in the last few years. Comparatively young practitioners can remember when men engaged in medical research and experiment were regarded by clinicians with half disguised contempt and when their studies were considered as impracticable, even if diverting.

All this is changed and, at medical conventions and in the attention paid to written articles in the professional literature, we find an increasing tendency to emphasize the experimental and scientific side of medicine and to esteem lightly the actual practice of the healing art.

To a certain degree, this change of attitude is wholesome, but there is danger of carrying it too far. We must not forget that the profession of medicine cannot exist except as it produces practical results, and that, even with the liberal support of laboratories by universities, by government appropriations of one form or another and by private philanthropy, scientific medicine cannot thrive except by its dependence upon and contributions to medical art. It is human nature to despise that for which we have no sympathy, and we can scarcely wonder that certain pathologists, bacteriologists, etc., should reciprocate the contempt that the practitioner of medicine and surgery formerly bestowed upon them or their predecessors. But any such attitude, assumed by either class, is unwise and unfair.

It is no longer necessary to argue for a respectful consideration of the labors of scientific investigators, even with the immediate practical outcome of their work is not apparent. Every general principle of physical or biologic science is bound, sooner or later, to

have its practical application, and it is only rarely that the essentially practical man, that is, the one who, seeking immediate, utilitarian results, either in the narrow commercial sense or in the sense of endeavoring to benefit humanity, can discover a general principle or that he can secure his ends except by following in the footsteps of the purely scientific student.

Even the recording of facts of apparently little interest and no value, such as the life cycles of insects, the temperature at which this or that bacterium thrives, the duration of the reproductive process in a mosquito, the attacking of economically unimportant animals and fish by still less important parasites, the change of color of certain organic compounds in contact with various chemicals, have been shown to be of the utmost practical value, sometimes very directly, sometimes by suggesting analogous studies along lines more intimately connected with human welfare.

On the other hand, the man whose effort is directed merely toward the recognition of landmarks of disease, of gross methods by which it is transmitted, and toward means of cure or even relief of symptoms, has enjoyed the respect and support of the community for upward of three thousand years and indeed much longer in a less formal way. It is absurd to suppose that he has become an unimportant factor, that he is continued in his support merely by a delusion as to his usefulness or that he will cease to exist within any period of time that can be foreseen.

It would require too much space to point out in detail that the medical practitioner actually accomplishes important results and that the assertions sometimes made that his function is to alleviate trivial discomfort, to assist in the collection of pathologic material, in enforcing sanitary details and in securing surgical intervention at the proper time, are not only discourteous but foolish.

It is unnecessary to call attention to the fact that the recognition of the manifestations of disease is now something very different from the mere familiarity of gross appearances; that etiology and prophylaxis are based on accurate preliminary study of chemic and living causes of disease; that our remedies are no longer judged by the somewhat uncertain observation that they produce obvious effects in patients, but that they are often modified in accordance with well known chemic principles and that their action is determined by actual experiment.

We are just about at the termination of the period when pioneer work along these various lines could be carried on in connection with medical and surgical practice. The very intimate dependence of practical medicine and surgery upon accurate, painstaking scientific research, paradoxically tends to divorce the practice from the scientific study of medicine. The

demands of neither can be fulfilled satisfactorily by one whose attention and time are claimed by the other.

It is for this reason that the cordiality of the relations between the practitioner and the laboratory worker assumes an increasing importance and that each must keep in touch with the results and aspirations if not with the technical details of the other. We are even fast approaching the time when the practitioner can no longer be a teacher, in the professional sense, of the youth who intend to be practitioners.

It must be clearly understood that, even in the narrowest commercial sense, the existence of either kind of medical worker is threatened if he attempts to cut loose from affiliation of the most harmonious kind, with the other. In plain language, the physician who does not follow and apply the teachings of pathology, of bacteriology, and of organic chemistry, physics, etc., is dangerously near the point at which he will lose his practice because of the inferior results obtained. So, too, the community, whether by public taxation or private philanthropy, will cease to support laboratories from which practical results are not ultimately forthcoming.

On the one hand, it is not only the ethical duty but the financial interest of the practitioner, to aid the investigator in obtaining material and data necessary for scientific research. On the other hand, it is equally the duty and the financial interest of the laboratory worker to modify his methods so that they to give up a month's time and pay his own expenses, for the sake of continuing his studies along a very practical line of research, at an institution donated for such general purposes, but the rules of the institution—apparently not fundamental, but adopted as a matter of convenience—were such as to allow the use of the laboratory only by the regular staff and by appointees for terms of a year. In a sense, such rules are impartial and just, but their obvious tendency is to disbar clinicians and men whose actual experience has suggested needed investigations.

can be applied, crudely, perhaps, but still with sufficient accuracy for clinical purposes, by the practitioner and to work out such problems as the latter may from time to time submit.

The fact that, on the one hand, the clinician does not appreciate the remote practical possibilities and does not share the immediate interest of the investigator and that the latter fails to recognize the practical benefits of approximate and suggestive scientific investigation, or that he is personally indifferent to the desire of the former for a specific explanation of a puzzling clinical phenomenon, does not relieve either of responsibility.

To offer definite criticism, we have noted that the

scientist too often holds that because a method is inexact, it is worthless; that, being accustomed to a well ordered routine, he often fails to recognize the necessity of attacking problems rarely encountered, when the material is available; and that, occasionally, there is a spirit of discrimination in favor of his colleagues and against the practitioner who has no official connection with his particular institution and, perhaps, no particular influence in the community, but who is, nevertheless, deeply interested in and willing to co-operate in solving some problem of practical importance.

For example, a practitioner, of good standing, and, indeed, fairly well known in medical literature, offered to give up a month's time and pay his own expenses, for the sake of continuing his studies along a very practical line of research, at an institution donated for such general purposes, but the rules of the institution—apparently not fundamental, but adopted as a matter of convenience—were such as to allow the use of the laboratory only by the regular staff and by appointees for terms of a year. In a sense, such rules are impartial and just, but their obvious tendency is to disbar clinicians and men whose actual experience has suggested needed investigations.

THE NEW LAW AGAINST SUBSTITUTION.

NEW YORK State has recently passed a law forbidding the substitution for any drug, medicine, food or other preparation used in medical practice, of any other substance, by any person whatever, and also forbidding any deviation from the quantities as well as the articles designated in a physician's prescription. A first offense is made a misdemeanor. Conviction of a second offense must (not may) be punished by imprisonment for not less than ten days nor more than one year and the payment of a fine of \$10—\$500. A third conviction, in addition to liability to penalty for misdemeanor, disqualifies the offender from engaging in any way as proprietor, employee or otherwise, in the dispensing or manufacture of any of the articles mentioned. A second section specifically states that the present law, which takes effect Sept. 1, 1907, shall not in any way abrogate the responsibility for offense against previously existing legislation on the subject.

Excepting in regard to physicians' prescriptions, the apothecary or any other person, may advise the substitution of another article and may, with the consent of the purchaser, sell it.

One by one, the rights of the fraud and grafter are being curtailed and, at every step in this direction, we are getting farther from the old cynical principle "caveat emptor." Or rather the buyer is enforcing

his right to look out for his interests by acting in unison with other buyers and in securing legislation for protection in advance of the time at which he is forced to go to market or stand in front of a counter and make his purchase.

The present law will undoubtedly be criticized for allowing substitution, provided that it does not apply to a prescription and that it is understood by the purchaser. Unquestionably, such substitution is often urged on the buyer because the seller has not the enterprise to keep a satisfactory assortment or because he can make a greater profit on one article than on another of similar or practically identical composition. On the other hand, it is obvious that it is impracticable for any store to keep every brand of every article used and it is no secret that manufacturers of popular articles often make hard terms with retailers. Then, too, the druggist or "any other person," is quite as likely to be competent and impartial in advising the purchase of a particular article as is the manufacturer, reaching the consumer through the popular press, the street car sign, the bill board, or the circular. A little consideration will convince any impartial critic that it would be impossible under ordinary conditions to prohibit open substitution in dealing with a purchaser not in general competent to judge as to the merits of any article used medicinally. In the long run, any article of especial merit will prove its own claims and, indeed, the patient selecting salts, liniment, salve, plasters, proprietary foods, etc., without professional advice, might just about as well have one article as another of the same kind, while, in many instances, the druggist will confer a benefit upon him by advising him somewhat in his selection.

What we have just said must not be construed as a defense of counter prescribing. That is another and a long story.

THE COCAINE FIEND.

IT is probable that cocaine has taken the place of opium as the drug which, when improperly and wrongly employed, is most hurtful in its effects upon the human race. It is not only the adult who oftentimes succumbs to it, but it appears that even little school children are now forming a pernicious acquaintance with it. It is observed by the *New York Tribune* that if the Legislature of the State of New Jersey regards the appeal of many mothers whose children have been attending public schools in Newark, the law regulating the sale of cocaine will be amended so that the penalty for its violation, which is now much too lenient, may be fixed at the discretion of

the judge. These mothers have naturally become both anxious and indignant since it was discovered that not a few of the pupils in the schools on Camden and Morton streets, some of them as young as ten years, have become addicted to the use of cocaine. There is also as natural indignation and consternation among the principals and teachers in these schools. The drug seems to have been introduced through the agency of three depraved youths who have, it seems, been acting in the interests of a more depraved set of older victims. The three boys, it seems, had, as agents, been carrying on a lucrative trade among the older children. By means of these discoveries were teachers enabled to explain why certain pupils had shown a gradual and quite unwonted falling-off in their studies. The tempted children had been lured to a candy store near the schools, when since March last they had been spending the pennies intended for ice cream, pies and candies for the poison which was sold to them by unscrupulous vendors, who, moreover, instructed them in its use.

It would seem that victims of this "dope" find purchasing it an easy matter in whatever quantities desired. And many medical men are much too incautious in prescribing it. A prescription containing cocaine should invariably be marked *non repetendum sine ordine*. And all our wise and experienced colleagues who work in the nose and throat are very careful in its use. If a choice *must* be made between prescribing opium and cocaine they prefer the former, we believe, as being on the whole less dangerous. It is certain that a large part of the degeneracy in which many among our negro population has fallen is due to cocaine; and, moreover, that many of the crimes which are committed by the unfortunate members of this race are due not to inherent viciousness, but to the effects of this dreadful poison.

A GREAT MUNICIPAL PROBLEM.

THERE are probably few citizens living on Manhattan Island who realize how crowded with humanity some of its districts are. In point of fact, there are blocks on the lower East Side more densely packed than in any other known locality on earth. Not in heathen Peking or Indian Calcutta or Turkish Constantinople are people so huddled together as in Christian, civilized, up-to-date New York. "To say," declares Mr. Lawrence Veiller, perhaps the ablest American expert on housing conditions, "that the lower East Side of New York is the most densely populated region on the habitable globe gives no adequate idea of the real conditions. To say that in

one section of the city the density of population is 1,000 to the acre, and that the greatest density of population in the most densely populated part of Bombay is but 759 to the acre; in Prague, 485 to the acre; in Paris, 434; in London, 365; in Glasgow, 350; in Calcutta, 204, gives no adequate realization of the state of affairs. No more does it to say that in many city blocks on the East Side there is often a population of from 2,000 to 3,000 persons—a population equal to that of a good sized village."

A most valuable paper on "The Housing Problem in New York" was recently read by Miss Kate H. Claghorn, the Registrar of the Bureau of Tenement House Inspection Department, and while she read her paper "before and after" photographs, the former showing a state of things certainly distressing to a squeamish nature, were examined by her audience. These depicted vividly the state of things suggested in Mr. Veiller's quotation.

From 1817, stated Miss Claghorn, housing was first supplied to the foreigners who came from farms and cabins, where they could not well deprive themselves of light and air, by altering discarded dwellings into the multiple system by means of running partitions in every direction. In 1834 light and air were prescribed, and barrack-like buildings were run up in front and rear lots. In 1879 the dumb-bell tenement was introduced as a triumph, and to-day two-thirds of our tenements are of this mistaken type. In 1885 the Charity Organization Society investigated the matter, with the result that by act of the Legislature the Tenement House Department was inaugurated on January 1, 1902. During the four subsequent years 4,000 tenements were erected in Manhattan, and 16,000 in Greater New York. Thus have decent accommodations been provided for 193,000 families or about 900,000 persons. A dwelling in which three or more families do separate housekeeping now constitutes a tenement. This obliterates the dividing line between rich and poor for now most of us are tenement dwellers. The law in this respect refuses to let either the rich or the poor live without light and air. Only 70 per cent. of a lot can be built upon, except in corner lots, where 90 per cent. may be covered. The height must not exceed one and one-half times the width of the street. Each room must have a window opening upon the outer air, the minimum space of which must be one-tenth the area of the room. The minimum court for a 60-foot building is 24 square feet. Ceilings must be at least nine feet high. Each apartment must cover 121 square feet. Each inmate must be allowed 400 cubic feet of air space. Each apartment must have a fire escape and each room must

be accessible from the apartment hall. Where eight or more families are in a building, there must be a janitor.

The bettering of our housing conditions is indeed a first essential, not only in the prophylaxis against infections, but also to decent living, and the example set by our Tenement House Department is being very extensively imitated in many an American city.

OBSERVATION AND DEDUCTION.

ALL science that is worthy of the name is based on accurate observation, upon which must follow intelligent deduction from the data thus collected. There is, however, much pseudo-science rampant nowadays, which is the result of loose deductions from observations made by those untrained in scientific thinking. Much of this kind of "science" is in the field of the psychic. Here flourish such plants (or rather weeds) as Theosophy, Christian Science, and Osteopathy. Such growths flourish upon the happy-go-lucky and oftentimes even joyful credulity of many among our fellow men, coupled with a most notable fallability as observers of facts.

Nor are correct observation and deduction easy processes by any means. Error may creep even into the deliberations of those well trained. Does not Osler quote Hippocrates: experience is fallacious and judgment difficult. As to observation it seems, for instance, that historians are not at all agreed as to the height of the first Napoleon, or the color of the third Napoleon's moustache. It is a fact dwelt upon very well by Le Bon in his notable book, "The Crowd," that it is one of the most difficult things imaginable to get a clear and accurate report of any series of events. Members of the Bar will relate with exasperation how witnesses as creditable and as unbiassed as can be had will almost never quite agree in their descriptions of a scene which they have observed in common. The personal coefficient of any fact that is narrated must always be taken into account.

With regard to deduction we have before us for review a work on "Health Through Self-Control in Thinking, Breathing, Eating," which the author declares to be the result of years of thought and observation. He specifically states his intention to make throughout this book none but scientific statements. We are therefore somewhat unprepared to read that "efficient diaphragmatic breathers are uniformly courageous"; that "rib and inefficient breathers are uniformly sad people." Many interesting, if perhaps inaccurate, things are to be found in this book concerning the emotions. Curiosity is stated to be one

of the most vicious emotions, but hate is the most dangerous. No man can hate steadily for an hour "because the toxin generated in one hour of hate would, if taken into their systems, kill eighty men." We are, however, not informed of the manner in which this concise statement has been evolved. Fear is also dangerous, though not so dangerous as hate. It is particularly dangerous to be fearful in a thunder storm. But even without the presence of thunder and lightning the result may be deadly, for fear "upsets the balanced condition of the body, the positive and negative equilibrium of local and universal flow of electricity." So it may happen that a man may "electrocute himself."

To return for a moment to breathing: "Air is proved vegetable life and products; and in the sweet by and to have in it refined and equivalent essences of all by one will live more and more by breathing"; yet, while the author believes that "oxygen is a grand agent," he seems rather glad on the whole that "sufficient oxygen and diaphragmatic breathing" are not guaranteed to us. If they were "we could not have any career"; we should "have no salvation to work out." It seems also that the long lives in the Old Testament were deep and adequate breathers; and the author rather hints that if we breathed rightly we ought to live about three hundred years.

THE WORKING CAPACITY OF CONSUMPTION.

THE question of how much work consumptives, or those in whom the disease has been arrested, can do is one entitled to as much consideration as the proportions which one writes in a prescription. The strength and the capacity for labor should in each case be measured. In some instances this, we believe, is done—as at the Health Farm of the Young Men's Christian Association in Denver. The Ohio State Tuberculosis Commission also, some time ago sought to establish the economic value of a cured consumptive's labor; on resuming his occupation, the capacity of such a laborer was found to be about one-fifth of that of a workman who has not been ill.

The Committee on the Prevention of Tuberculosis of the Charity Organization Society in this city has made an important investigation of this phase of the tuberculosis problem. An agent tried to find places in a number of different districts for the particular individuals and families for whom the committee wished to provide. The character of the latter, their habits and responsibilities, their physical condition were carefully examined. Those who were found strong enough to do light work without danger were trained in hygiene and kept under strict observation

until suitable country employment was found for them.

Farm help is always badly needed; yet the farmers cared little for this sort of labor, except at a very low wage. Healthy men who were ignorant of farming could be taught; those who knew about farming but were ill could be given light tasks while strength should be returning. But there was naturally no demand whatever for men both weak and untrained, who were driven to the soil only by disease.

Success with single men, or those whose families could be left behind being thus doubtful, the committee next considered the tenant houses standing vacant on a number of farms. Such a house with a spring or well water, and a large garden plot could be had for two or three dollars a month; and as much firewood and fruit could usually be gathered without price as would suffice for a family's needs.

Among sixty applicants for the positions to be filled forty-three were rejected because of drunkenness, shiftlessness, or physical defect. Precisely seventeen were able to pass the double examination required, and of these only ten were placed in employment, most of the others being provided for by friends or at sanatoria. But two of these ten cases were entirely successful, two were partly so, and the remaining six were failures.

The committee bases some significant observations upon their experiment. They find that indigent consumptives can occasionally be placed in suitable country employment with exceedingly good results; that comparatively few such patients desire such work sufficiently to apply for it, and that most among such applicants are absolutely unfit either from medical or social reasons, or both, for such work. Incipient cases in good physical condition can with difficulty be persuaded to give up their city employment. And here we may express profound wonderment that people will prefer to remain in an unhealthful urban environment, with all the attendant discomfort and misery, when rural life, with all its enjoyable and salubrious aspects is offered them. The committee would prefer that such incipient cases should be taken care of in sanatoria, whenever they are willing to give up their occupations. Although farmers, as we have seen, naturally do not wish as farm hands men both ill and inexperienced, there are in small towns and villages somewhat better opportunities for tradesmen and artisans.

It is evident, therefore, that physicians and others concerned with the care of consumptives should not send these patients to the country to shift for themselves. Any scheme for the country employment of consumptives should offer facilities for the careful adjustment of work to the physical abilities of the individual.

SEA AIR AND CONVALESCENCE.

THE improvement in the condition of patients who are taken to the seashore is oftentimes truly remarkable, and there is almost no disease with regard to which the sea air does not work a salutary change. Especially is this so in children, who are bettered within the hour of their arrival and who, under such circumstances, almost invariably recover from the maladies to which infancy and childhood are prone. A scientific consideration of the manner in which such improvement comes about must take into account not only the essential purity of the air which comes in upon the winds from the sea, but also that this air is saturated with salts from the breaking of the waves and the dashing of spray upon the shore. The saline odor of such air is caused by the evaporation of the extractive matter inherent in sea water; this odor is strongest during a storm and when the waves dash upon rocks covered with seaweed. At the shore, moreover, the air is under more pressure than in places of greater elevation; it consequently contains more oxygen, and in its concentrated form of ozone. There is also an almost complete absence of infective germs. To such peculiar factors as these must be attributed the benefits derived by invalids during a residence at the seashore. "No doubt can be entertained," declared Packard, "in view of often-observed facts, that the effect of exposure to sunlight upon animal life is directly invigorating; and when with this is combined the constant inhalation of salt air, and the frequent application of salt water to the whole surface of the body and limbs, it is easy to see why children should gain health and strength at the seashore."

The temperature on or near the sea is more equable than it is inland; in the summer it is cooler, in the winter it is milder.

What diseased conditions are particularly benefited at the seashore? All chronic ailments and strumous manifestations in children. Tuberculosis decidedly; and the joint and gland lesions in children oftentimes heal rapidly, without surgical intervention. The diarrhoeal diseases. Desperate cases of entero-colitis, the patients being prostrated by the heat in the cities, nearly all recover through the influence of sea air. Children convalescent from the infectious diseases, or those having subacute nasal and pharyngeal catarrhs, even those having acute bronchitis recover rapidly. Cases of infantile paralysis improve slowly but steadily. Asthmatic patients as a rule do well at the seashore, especially when this affection is associated with chronic bronchitis. There is perhaps no better treatment for chronic rheumatism than warm sea-bathing, followed by massage, and under circumstances where the patient may take a nap after the bath in a lounging room or "sun parlor." Insomnia is generally dissipated at the seashore.

Sea-bathing is certainly both strengthening and hardening. But there are rules which should govern indulgence in it. Many who cannot bathe in fresh water can do so in the sea, probably because the abstraction of caloric from the body in salt water is less than in fresh, by reason of its greater density. The saline ingredients have also a more stimulating effect upon the skin and induce a more energetic reaction. Because of its saline character sea-water does not evaporate from the skin as readily as fresh water. Even after pretty thorough drying saline particles adhere and find their way into the pores (as may be tested by applying the tongue to the surface) and keep up a tingling glow long after the bath is over. It is well known that when soaked to the skin by salt water one does not take cold as easily as when drenched in the rain; the reason is that the pungent sea salts so stimulate the cutaneous circulation as to enable it to resist the depressing effects of the cold produced by the evaporation of the fluid portion. The beating of the waves, moreover, produces a healthful exhilaration and excites salutary exercise.

It is better to bathe just before high tide; the water has then been somewhat warmed by passing over the hot sand. Besides it is safer then, because any bather losing his foothold would likely be washed shoreward rather than seaward. However, most find it convenient to bathe at eleven, about three hours after breakfast. One should not bathe within two hours after any meal.

Children should not remain in the water over five minutes; and then they should be taken at once to their bath-house and not permitted to play on the beach in their wet bathing suits. If they fear the water they should not be forced. Three or four sea-baths a week are quite sufficient for even the strongest child. (Powell, *Am. Text-Book Dis. of Children*.) A thorough rubbing down is essential; the child should then be quickly dressed and allowed to resume its play in a sunny spot unexposed to the wind. An infant (under two years) should not be taken into the sea; for these the heated salt water bath must be substituted.

At all times in the year, in winter as well as in summer, the sea air is beneficial to sick children. Its clothing, preferably of wool, should here be slightly heavier than that worn in the city or country. Long stockings had best be worn, even in the warmest weather, for toward the evening the air becomes cooler and sometimes even cold. Overeating must be guarded against, for on arriving the appetite is naturally sharpened by the change of air. For very young children drives upon the beach are appropriate, even for very ill children. They should play much in the warm dry sand.

No death from rabies has been recorded in England since 1902; this is cited as an excellent illustration of the preventive treatment of infectious diseases.

BIBLIOGRAPHICAL

Treatment of the Diseases of Children. By Charles Gilmore Kerley, M.D., Professor of the Diseases of Children, New York Polyclinic Medical School and Hospital; Attending Physician to the New York Infant Asylum; President of the American Pediatric Society, etc. Fully illustrated, octavo, pp. 597. Price, \$5. Philadelphia and London: W. B. Saunders Company, 1907.

This work is specially prepared for the general practitioner, contains just what he wants, and he should show his appreciation by obtaining a copy.

The text is largely original in matter as well as arrangement, and carefully adapted to the busy practitioner, and not the undergraduate or the specialist.

Therapeutic measures and modern methods of management are fully dealt with in accordance with the large personal experience of the author.

We have no hesitation in urging our readers to purchase this book, as it will save the reading of a lot of matter not required by them.

International Clinics is a quarterly of illustrated clinical lectures and especially prepared original articles on general medicine by leading members of the profession. Edited by W. T. Longcope, M.D., and published by J. B. Lippincott Company, Philadelphia and London, containing 312 pages of interesting matter upon vaccine treatment of infectious diseases; the treatment of rheumatism; management of exhaustion states in men; the thermal treatment of Aix-les-Bains; a plea for laparotomy rather than paracentesis in ascites; paralysis of oculomotor nerves in diabetes; detection of the ova of intestinal parasites in the feces; clinical examination of cerebro-spinal fluid; perforating duodenal ulcer; post-partum hemorrhage and its treatment; the essentials of scientific infant feeding; insanity in the aged; experimental cerebro-spinal meningitis and much other interesting and instructive material from well-known authors.

This series stands at the very head of its class, and our readers can make no mistake in subscribing for it.

A Manual of Treatment of the Diseases of Children. By W. F. Radue, M.D. 12 mo., pp. 165. Chicago: The Clinic Publishing Co., 1907.

The object of this little book is to instruct the reader in the employment of small and frequently repeated doses of drugs in the treatment of diseases of children.

The author uses chiefly alkaloids, but his text is not confined to that method, and it abounds in practical advice along the whole line of treatment.

The book will be found useful for its purpose.

Diseases of the Rectum: Their Consequences and Non-Surgical Treatment. By W. C. Brinkerhoff, M.D. 12 mo. pp. 207. Price, \$2. Chicago: Urban Publishing Co., 1907.

This little book is devoted chiefly to the treatment of hemorrhoids by the injection method, with illustrative cases. Artificial feeding and the alleviation of intestinal disorders looking to the prevention of conditions which result in appendicitis, are discussed.

Diseases of the Liver, Pancreas and Ductless Glands. By A. L. Blackwood, M.D., Professor of Clinical Medicine and Materia Medica in the Hahnemann Medical College, Chicago, etc. 200 pages, 12 mo. cloth, \$1.25. Postage, 5 cents. Philadelphia. Boericke & Tafel. 1907.

The author has given in this little book, in a con-

cise and clear manner, the essential points in diseases of the liver, pancreas and ductless glands, with differential diagnosis, for the use of the busy practitioner, and the student of medicine. The subject of treatment has been considered at considerable length. The work will be found satisfactory by those for whom it is intended.

The Standard Family Physician. Smith Ely Jelliffe, *et alia*, 2 volumes; large 8vo; in buckram binding, \$15.00 per set, net; in three-quarter Morocco, \$20.00, net, illustrated. Funk & Wagnalls Company, 1907.

This treatise is the result of the joint collaboration of Dr. Carl Reissig of Hamburg, assisted by an able corps of European specialists in medicine and surgery, and Dr. Smith Ely Jelliffe, associate editor of the *New York Medical Journal*, in conjunction with a number of other eminent American physicians. This work has been written in such a way that it can be easily understood by any intelligent layman, no matter what subject it treats. Its range is exhaustive, and it is especially valuable in its anatomical and clinical parts. The arrangement commends itself for rapid consultation. The first section is devoted to the presentation and study of the anatomy of the human body; this is accompanied by a manikin (in colors) which shows its 345 distinct parts.

In treating the subjects under discussion, the editors have avoided, wherever possible, the use of technical terms; this has been done without sacrificing scientific standards of accuracy, and in such a manner that no less eminent an authority than Dr. William T. Bull, says "it impresses me as an admirable book which presents scientific facts to the laity, concisely, thoroughly, and accurately without furnishing information or uttering opinions which would encourage fads or quackery." The work is highly endorsed by other eminent medical men.

American Practice of Surgery. A complete system of the Science and Art of Surgery, by representative surgeons of the United States and Canada. Editors, Joseph D. Bryant, M.D., LL.D., and Albert H. Buck, M.D. Price \$7. Complete in eight volumes. Profusely illustrated. Volume III., octavo, pp. 775. New York: William Wood & Co., 1907.

The third volume of this great work by American surgeons is before us and fully bears out the impression made by its predecessors. The following subjects are elaborated by eleven eminent authors: Poisoned wounds, including the bites and stings of animals and insects; injuries and surgical diseases of bone; diseases and injuries of joints.

The text is classically written, printed in good type, and beautifully and fully illustrated.

No surgical library can be complete without this typical American work and it is sold only by subscription.

Gynecology and Abdominal Surgery. Edited by Howard A. Kelly, M.D., F.R.C.S. (Hon. Edin.), Professor of Gynecologic Surgery at the Johns Hopkins University; Gynecologist to the Johns Hopkins Hospital, Baltimore, and Charles P. Noble, M.D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia, Surgeon-in-Chief Kensington Hospital for Women. Illustrated by Hermann Becker, Max Brödel and

others. Volume I., octavo, pp. 851. Price \$8. Philadelphia: W. B. Saunders Co., 1907.

This volume adds another to our classical literature. The names of the editors and fifteen eminent contributors are sufficient guarantee of the quality of the work. The classification is of great practical value to the general practitioner and is different from that usually employed. The medical portion is designed to meet the requirements of the general practitioner and it is conveniently arranged in one section.

Puerperal injuries and infections, the treatment of incomplete abortion, ectopic pregnancy, and the Cæsean operations have been included.

Separate chapters have been devoted to the systematic consideration of the bacteriology and the pathology of the diseases of women and to the operations during pregnancy, operations before puberty, conservative operations upon the uterine appendages and the complications of operations.

Surgical gynecology and abdominal surgery proper have been broadly and liberally considered and profusely illustrated with fresh, accurate and graphic drawings. No other monograph on pathology as complete as this has yet appeared in our language. This is the first attempt to cover gynecology and abdominal surgery in a single work, and it is unique. The editors are fully impressed with the intimate relationship of the two subjects, in the practical sense.

To save space elementary matters found in every text-book have been omitted.

The work is for the advanced student, the general practitioner, and the specialist, to such we commend it.

Practical Gynecology. A comprehensive text-book for students and physicians. By E. E. Montgomery, M.D., LL.D., Professor of Gynecology Jefferson Medical College; Gynecologist to the Jefferson Medical College and St. Joseph's Hospitals; Consulting Gynecologist to the Philadelphia Lying-In Charity and the Kensington Hospital for Women. Third revised edition, with five hundred and seventy-four illustrations, the greater number of which have been drawn and engraved specially for this work, for the most part from original sources. Octavo, pp. 970. Price, \$5.00. Philadelphia and London: W. B. Saunders Company, 1907.

The text has been carefully revised for this edition, and about seventy pages of new matter added to bring the subject to date.

The text is clearly and concisely described in a most practical manner, and splendidly illustrated, so that the work has become one of the most popular of its class for the student and the general practitioner. The book will be found perfectly satisfactory.

Post-Operative Treatment. An epitome of the general management of post-operative care and treatment of Surgical Cases as practised by prominent American and European surgeons. Together with suggestions concerning the technic of certain operations with a view to securing better post-operative results. By Nathan Clark Morse, A.B., M.D., Surgeon-in-Chief to "Emergency Hospital," Eldora, Iowa; District Surgeon, Chicago & North Western and Iowa Central Railways, etc. Second edition, revised and enlarged. Containing 5 plates and 175 other illustrations. Octavo, pp. 499. Price, \$4.00. Philadelphia and London: W. B. Saunders Company, 1907.

This book is of immense service to the surgeon, because his assistant can find here the help he needs to make an operation successful. There is no more important matter than suitable post-operative care in surgical cases. Ignorance and neglect have been the cause of many a death. With this book in hand, the interne can have no excuse for improper after treatment in surgical cases.

The book should be found in every surgeon's library. **A Laboratory Manual of Invertebrate Zoology.** By Gilman A. Drew, Ph.D., Professor of Biology at the University of Maine; in charge of Zoological Instruction at the Marine Biological Laboratory, Woods Hall, Massachusetts. With the aid of members of the Zoological Staff of Instructors of the Marine Biological Laboratory. 12mo, pp. 201. Price, \$1.25. Philadelphia and London: W. B. Saunders Company, 1907.

This little book, having for its basis a set of laboratory directions to meet the needs of a class in general zoology at the Marine Biological Laboratory at Woods Hall, has been published for the service of others who may require its benefits. It is not intended to lead students to a knowledge of comparative anatomy alone, but to an appreciation of adaptation as well.

It is a practical and instructive manual for the student in this department.

A Manual of Diseases of the Nose, Throat and Ear. By E. B. Gleason, M.D., LL.D., Clinical Professor of Otology in the Medico-Chirurgical College; Surgeon-in-Charge of the Nose, Throat, and Ear Department of the Northern Dispensary; formerly one of the Laryngologists to the Philadelphia Hospital. Illustrated. 12mo., pp. 556. Price, \$2.50. Philadelphia and London: W. B. Saunders Company, 1907.

This manual is intended for under-graduates during their college years and for the post-graduate in laryngology and otology.

The details of inspection, examination, and diagnosis, and the use of the commoner instruments have received careful consideration. Methods of treatment have been simplified as much as possible, and a number of formulas given. The text is well illustrated.

This book is one of the best we have seen for its purpose.

Progressive Medicine is a quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Dr. Hobart Amory Hare and H. R. M. Landis, and published by Lea Brothers & Company, Philadelphia.

The June number contains 381 pages of interesting and instructive matter, fully illustrated, upon the following subjects:

"The Radical Cure of Femoral Hernia"; "Surgery of the Abdomen, Exclusive of Hernia"; "Cancer and Fibroid Tumors of the Uterus," fully elaborated; "Enteroptosis in Its Relation to the Gynecological Diseases"; "Metrorrhagia Myopathica"; "Menstruation"; "Non-Operative and Operative Plans of Treatment of Gynecological Diseases"; "Diseases of the Blood"; "Diathetic and Metabolic Diseases"; "Diseases of the Spleen, Thyroid Gland and Lymphatic System," and "Ophthalmology."

These articles are written expressly for the use and help of the general practitioner, to whom we commend them.

AMBIDEXTERITY.

To the Editor of the MEDICAL TIMES:—

Referring to the very interesting article on ambidexterity and right-handedness in the July issue of the TIMES, I would like to call attention to the fact that the custom of writing from right to left in many of the more ancient languages, as Hebrew, and the almost universal reversion of the direction in those more recently developed as written languages, is an additional indication of the general right-handedness of man. It is easy to see that the progression of the hand in writing on paper, etc., with a pen or pencil, is freer in a direction away from the middle of the body. Hence, the general use of the direction from left to right, in such writing indicates that the right hand is used to hold the pen or pencil.

At first thought, it would appear that the progression from right to left, as in Hebrew, would indicate left-handedness for the same reason. But written speech in Hebrew and some other languages, developed quite early, when, unquestionably, writing tools were coarse and writing material consisted of stone, clay, sand, etc. Under these circumstances, the progression in writing words required not only a sweep of the hand and fore-arm but of the whole arm and even of the body. Now it can be demonstrated by using a stick and trying to write on the sand that the natural mode of progression will be exactly the opposite to that which is natural when small writing utensils and paper, parchment, etc., are employed. Hence the change of progression from the early right-to-left to the more recent left-to-right, follows the evolution of writing materials and corresponds to right-handedness. As an intermediate stage, we find the boustrophalic (literally ox-turning) writing in which the letters and words read from right to left on one line, left to right on the next and so on, following the course of a team in plowing.

Another general evolutionary fact establishes the very early development of human right-handedness: namely the existence of this peculiarity in nearly all individuals of every race and tribe. If it had been recently acquired, i. e., within ten thousand years or so, we should expect some races to be left-handed, at least in a considerable minority of their members.

Some qualification should be made of the statement that the lower animals are ambidexterous. By training, many become more or less unilateral in function. Thus, dogs usually learn to shake hands with the right paw; horses and oxen broken to take the off or near side in a team are awkward, even unmanageable if placed on the other side or even if driven single; cows will usually allow themselves to be milked only from one side, the right in this country, but the left, I am informed by an artist in Holland. Obviously, almost none of the common domestic animals perform tasks requiring dexterity in either the literal or derived sense and, indeed, their anatomic development does not allow them to do so. It would be interesting to note by careful study whether monkeys become unidexterous. Probably right-handedness in man is originally due to the instinctive or intelligent effort to guard the heart but there seems to be no connection, either positively or negatively, between left-handedness and visceral transposition.

A. L. BENEDICT.

Buffalo, July 13, 1907.

RETROSPECTIVE

Headaches and the Lacto "Bacillus."—Dr. Beverley Robinson says in *Monthly Cyclopædia of Practical Medicine*:

These are ills from which many people suffer and from which they would gladly get relief, if possible. There are all grades, as we know. With some, more or less continuous, and yet not sufficiently severe at any time wholly to incapacitate from work; others are continuous, with exacerbations; others still, and here we have so-called "migraine," which recur paroxysmally at more or less regular periods and with greater or less intensity.

How shall we manage them effectually? To begin with, the etiology must always be considered and the cause banished, if good results are possible. If it be a blood poison, that must be neutralized or eradicated. Thus anaemia must be cured, gout or rheumatism specifically treated as far as may be, febrile conditions ameliorated, and then with proper time the patient recovers—it may be altogether, it may be only for a time. Of course, if an alcohol habit be marked, it should be gotten rid of, and tobacco excess moderated. Lead-poisoning of certain trades, manifest malarial cachexia, insufficient renal elimination, with premonitory headache of uræmia, are all to be properly treated, or else headache continues. When syphilis is present and there is nocturnal headache with insomnia, iodides in increasing doses are our mainstay. And now, for the numerous reflex causes in nose, pharynx, uterus, ear, digestive disorders, they are all to be remedied properly, if at fault. Nasal obstruction, adenoids, and hypertrophied tonsils must be removed. A sagging or retroverted uterus should be raised or replaced in normal position. Errors of menstruation must be corrected by general and, in minor degree, by local measures. But when we reach digestive disturbances, acute or chronic, we touch really the keynote of very many headaches. An error of diet, some special food, or merely a surfeit of too many foods, will give a headache, which five grains of blue mass, followed by a saline draught, will alone relieve effectually and rapidly. A neuropathic condition, such as described as neurasthenia, is shown to be the efficient cause of very many, indeed the greater number, of miserable headaches. The most prevailing symptom accompanying the headache is disordered digestion—dyspepsia, constipation, diarrhoea. Proper neutralization and elimination through the digestive tract can usually be of primary and greatest service. And here, particularly, we would lay great stress upon the sour milk diet and the moderate use, morning and night, of sulphate of soda.

When we come to relieve migraine, we can do little more or better. No treatment will surely prevent the return of the paroxysms, simply because we have here to do with a constitutional neurosis, in which heredity is the ruling power. Alas! for the throat specialists, the gynecologists, the oculists, the otologists, who proclaim cures with the knife or with other local means. Much may be done by curing a defective organ by operation at times, or by topical applications frequently, to diminish the number and severity of attacks of hemicrania; but a permanent and absolute cure is quite another thing, and to ring true and fair to our patients, they ought to know it. In most cases of sick head-

ache, the final and only appeal left us is the hypodermic of morphine, unfortunately.

It seems to me we should find an interesting and instructive addendum in the results of urinary analysis. Especially is this true whenever the cause of the headache is obscure and there are symptoms of gastro-intestinal disturbance. From this standpoint, I beg to repeat almost textually from a personal letter received from Dr. Frederic E. Sondern, of New York, whose thorough knowledge, great experience, and reliability in clinical laboratory work are well known here. Dr. Sondern writes as follows:—

"Dear Dr. Robinson:—In answer to your inquiry concerning the aid rendered by urine analysis in finding the etiological factor in cases of headache of obscure origin, I beg leave to present the following brief outline:

"The most important point is to exclude the presence of evidences of a quiescent chronic nephritis of the contracting kidney type; these evidences often being very slight and easily overlooked. It is essential in this connection to have all the data to be obtained from a twenty-four hour specimen, as the examination should not be limited to a search for albumin and casts.

"Toxæmia may also occasion headaches, and that a variety of types exists, is beyond question. Unfortunately, their origin is still obscure, and their isolation from the urine not yet accomplished. It is, however, a common observation that a toxæmia is usually accompanied by evidences in the urine of faulty body chemistry, but the headache and other symptoms must not be ascribed to this faulty metabolism, as it may be present without clinical symptoms. Consequently the degree of fault in body chemistry is no guide to the severity of the clinical symptoms, for it is the toxæmia, and not the faulty metabolism, which occasions them. This faulty body chemistry shows several types, which may occur singly or in groups, so to speak, as follows: Relative excess of ethereal sulphates, usually accompanied by an excess of indican. Relative excess of uric acid as compared to other nitrogenous excretory products. Evidences of an acidosis as shown by the presence of acetone with or without diacetic acid and beta-oxybutyric acid. Yours sincerely,

"FREDERIC E. SONDERN."

It may be remarked that the practical outcome of urinalysis in obscure cases of headache connected with gastro-intestinal fermentation, eructations, and what not, all apparently included nowadays in "faulty metabolism," is only half satisfactory. We do, indeed, help the severity and frequency of many recurrent headaches by suitable medication, or treatment (lavage above and below) of stomach and bowels, but rarely, or never, cure, up to the present time, true hemicrania. Why? Because, once again, it is a constitutional neurosis. In many cases of headache we have merely the temporary result of a toxæmia. If we neutralize this toxæmia, well and good, and we cut short the headache as with a perfect antidote; if we neutralize merely, as it were, the result, or concomitance of the toxæmia ("faulty metabolism"), we are helpful, but not, strictly speaking, curative.

I, with many others, am now investigating results obtainable with Metchnikoff's "lactobacillus," the great generator of lactic acid in the intestine, and with the

legitimate hope not to cure all forms of headaches, and certainly not true hemicrania, but to neutralize, perhaps, the toxæmia of those headaches which seem to be intimately associated with neurasthenia.

Pasteurization and Sterilization of Milk.—In the invaluable *Practice of Pediatrics* by Carr and his colleagues this important subject receives exposition: Fresh, clean, unheated milk produced under hygienic conditions is the best. Such conditions, however, exist only during the cool months when the milk is from a healthy, inspected herd, handled at every stage with the utmost attention to cleanliness, kept constantly at a temperature below 40 to 50 degrees F., and used at or near its place of production while it is still fresh. Naturally, this combination can only obtain in the country and in towns where milk is supplied from the immediate vicinity. In cities milk is almost invariably—in part, at least—twenty-four and sometimes even forty-eight hours old before it reaches the consumer; it must then serve for twenty-four hours longer, or until the next supply comes. Some measure must therefore be adopted to check the already abundant growth of bacteria and to preserve the milk from souring. There are three methods—pasteurization, sterilization and boiling. The first of these may be carried out in various ways. It is theoretically best to have the milk pasteurized at the dairy in the bottles in which it is delivered to the consumer before the germs have had a chance to multiply. While this method would be preferable for children old enough to take whole milk, it is inapplicable in the majority of cases where the milk is to be modified at home, since the necessary handling and exposure during modification would render a second heating advisable. But a still greater difficulty consists in the fact that pasteurization kills the lactic-acid-producing bacteria which are inimical to other forms, and clears the way for the free development of the putrefactive germs; wherefore such milk, unless handled with the greatest care and kept continuously cool, may in time become more dangerous than if it had not been heated at all. The Freeman method of pasteurization is the most scientific and the most popular; the milk to be used for twenty-four hours is raised to 68 degrees C. (155 degrees F.), and maintained at that point for thirty minutes. A cheaper apparatus may be constructed from a large tin pail holding a rack for the nursing bottles, the cover of which is perforated by a hole to admit a chemical thermometer. The bottles are then immersed up to their necks and the whole is heated until the thermometer registers 75 degrees C. (167 degrees F.), when it is moved back on the stove and allowed to stand twenty minutes. Or the whole day's supply may be placed in a large glass fruit-jar closed by a cork, through which is passed a chemical thermometer, and the jar is surrounded by water and heated to 75 degrees C., this temperature being retained for twenty minutes, when the cork is replaced by a cap or a plug of sterilized cotton. Whatever receptacle is used, it should be removed at the end of the period of pasteurization; cooled as rapidly as possible in running water and then placed on ice. Placing the receptacle directly on the ice, without preliminary cooling, wastes ice; and there is also a longer period during which the milk remains warm, thus favoring the development of the unkilld spores.

Absolute sterilization can only be secured by heating above 212 degrees F. for one hour on each of three

successive days. Thus are killed the bacteria which germinate in the intervals from the latent spores which have remained unaffected. Home sterilization is never complete; for while it kills the living germs it does not kill the spores. However, heating to 212 degrees F. for ten to thirty minutes is practically sufficient when milk is to be used within the following 48 hours. The whole supply may be boiled in a saucepan or double boiler; or the separate feedings of the day, contained in nursing bottles stoppered with sterilized non-absorbent cotton and held upright in a rack, may be subjected to the action of steam in an Arnold sterilizer; or simply boiled by placing the rack in any covered receptacle containing water. An intermediate process which embraces some of the advantages of both pasteurization and sterilization consists in bringing the milk in a saucepan or double boiler just up to the point where boiling commences, removing it from the hot fire, standing it for twenty minutes in a warm place, cooling it rapidly in water and placing it on ice in a clean stoppered jar or bottle. Pasteurization does not alter the taste of the milk, nor change the chemical constituents nor directly affect materially the digestibility; while it kills the bacteria of tuberculosis, typhoid, diphtheria, cholera, and the pathogenic bacteria—the cocci and the bacillus coli communis. It also destroys most other forms to be found in milk; but does not affect the spore-bearing, peptonizing and butyric-acid-forming groups. If the milk is subsequently kept properly cool, it is sufficient to preserve it two or three days or more than ample time for ordinary use in infant feeding. Pasteurization may indirectly influence the digestibility of the casein of cow's milk. The quantity of tough products of paracasein and acid found in the stomach is proportionate to the total amount of acids present. This process by destroying the lactic germs, prevents the formation of lactic acid, so readily produced, especially in the summer months. This allows the normal acid of the stomach to form its own amount of paracasein products, which will more probably be in proportion to the digestive powers and the amount of pepsin secreted. The process thus at least prevents milk from becoming more indigestible. The action of rennet is furthermore slower and more imperfect upon pasteurized milk. It seems that among the changes produced in milk by temperatures above 167 degrees F. are the decomposition of lecithin and nuclein, reduction of the organic forms of phosphorus, change in form of part of the lactose, greater coalescence of the fat globules, coagulation of the albumin of the soluble proteids (which progresses steadily above 167 degrees F.), and a more imperfect action upon the casein of rennet, pepsin and pancreatin. There is also an alteration in the taste. Since it would thus seem that certain vital principles are altered or destroyed, it is probable that the exclusive use of sterilized milk favors the development of anemia, rickets, scurvy and constipation. This process is therefore contraindicated, except there are good reasons for its use. Judgment and careful consideration of special circumstances should govern all methods of infant feeding. The laity are apt to make a fetish of some one method; this should not be so; no method obviates the necessity of the proper modification for the individual infant. The sole purpose of pasteurization and sterilization is to kill dangerous germs and to lengthen the time during which the milk may be safely

used as a food. Absolutely fresh, clean milk at a low temperature and used with reasonable promptness during the winter months requires no heating. The necessity for pasteurization arises with the slightest uncertainty as to the cleanliness of milk, the healthiness of cows, the delay before consumption, the advent of warm weather, and where milk is to be distributed after modification for use in the homes of the poor, where there is always uncertainty as to its subsequent care. Sterilization of milk is indicated where any serious doubt exists as to its source, when it is to be preserved for a long time, as on a journey or voyage, and, perhaps, also where it is to be distributed in the hot months among the ignorant and careless poor.

Simplicity in Infant Feeding is the title of an important paper by C. W. Townsend (*J. A. M. A.*, Feb. 16, '07), upon a subject which occupies so much of the practitioner's attention in the heated term. "Infants are not machines, and they cannot all be treated alike." "It is far better to use a raw, dirt-free and therefore germ-free milk than to take a dirty milk and destroy its vitality in endeavoring to cleanse it by centrifugal force or by pasteurization. Both processes are undesirable. The latter does not destroy the dangerous butyric acid and peptonizing bacteria, but it does affect the lactic acid group which, when active, serve to check the more dangerous bacteria." We must begin with a cream as the basis of our modifications. By a dilution of a 10 or 12 per cent. cream and the addition of sugar of milk we can make up a mixture fairly comparable to mothers' milk. To obtain such a cream we dip off the top milk from a quart bottle with a Chapin's dipper;¹ we may simply pour off the cream into tablespoons (which contain each half an ounce) or into a cup. As a rough rule the upper eight ounces poured off from a quart of milk after it has stood at least four hours, contains about 10 per cent. of fat; the upper twelve ounces, 8 per cent.; the upper sixteen ounces about 6 per cent.; and the upper six ounces about 14 per cent. We must be guided by the appearance of the stools and regulate the amount of fat accordingly. It is easier and better to dilute this top milk with water than to combine a rich cream, a lower or fat-free milk, and water. We may use instead of water as a diluent or modifier, a cereal water (of barley, oats, rice or wheat). Such a cereal water certainly renders the milk more digestible by lessening the size of the clots; also a small amount of starch is thus digested, even by the newly born. Most babies do perfectly well with water as a diluent; but some digest with difficulty unless a cereal is used. After six months all babies are better with cereal modifications.

When we begin to feed an infant, whether a newborn or an older one that has suffered from improper feeding, we must begin with a mixture weak in all its ingredients, and gradually increase the strength; we must not begin too strong and then make frequent and purposeless changes. Thus a new-born baby may be put on three ounces of the upper eight ounces of top milk in twenty ounces; we then gradually increase by the addition every second day of half an ounce more top milk and the subtraction of half an ounce of water until eight ounces of top milk are given in a twenty-ounce mixture.

¹The Cereo Company, of Tappan, New York, will provide these at fifteen cents each.

In his valuable paper Townsend purposely avoids all reference to a calculation of percentages, "knowing by experience what a paralyzing effect such reference has on most physicians' minds." He feels, however, that the following simple rule will be found easy of application. Each ounce of 10 per cent. cream in a 20-ounce mixture represents 50 per cent. of fat, 20 per cent. of albuminoids (proteids) and 20 per cent. of sugar; and each even tablespoonful of sugar of milk added to this mixture raises the percentage of sugar to 2. In the example above given in which the infant is started on 3 ounces of the upper 8-ounce top milk in a 20-ounce mixture, the formula would be written as follows:

Top milk	3 ounces
Water	16 ounces
Lime water	1 ounce
Sugar or milk.....	2½ even tablespoonsful

Assuming that the top milk contained 10 per cent. of fat, this would mean approximately: Fat, 1.50; sugar, 5.60; albuminoids, 60. The final formula of:

Top milk	8 ounces
Water	11 ounces
Lime water	1 ounce
Sugar or milk.....	2½ level tablespoonsful

would approximate: Fat, 4.00; sugar, 6.60; albuminoids, 1.60. The fat percentage in the top milk can be gradually diminished by pouring off more of this top milk from day to day. Thus can the strength of the albuminoids be gradually increased in the mixture without increasing the fat beyond 4 per cent. When a cereal water is used in place of water, only one-half as much sugar of milk is necessary, and no lime water is needed. The value of lime water is somewhat doubtful.

The Parathyroids have become of much interest by reason of the relation which Berkeley and other workers have found to obtain between these structures and the disease Paralysis Agitans. Surgeons also must take especial interest in the exact disposition of the parathyroids. MacCullum (*Johns Hopkins Hospital Bulletin*, April, '07), finds that these glands are distinct from the thyroid, developing as they do from a distinct rudiment. Their removal in most animals causes tetany followed by death. The tetany may be cured temporarily by bleeding and infusion or by giving parathyroid extract either intra-venously or intra-peritoneally. The symptoms of tetany are not produced in the goat because the position of the glands is unknown, so that they are seldom removed. Partial extirpation in dogs gives, as a rule, no tetany. If only one gland be left certain strains may bring on tetany as lactation, etc. Tetany in human beings has been erroneously supposed to be due to removal of the thyroid. The surgeon should in his operations maintain the integrity of the parathyroids. It is not difficult to distinguish between the two. The parathyroids are small and soft and mushy; they are not elastic like the thyroid. They are translucent and homogeneous, of a chestnut or yellow ochre color. The glands are at most eight mm. long, two mm. wide, flabby and tongue-like. The thyroid blood supply is derived from the superior and inferior thyroid arteries; that the parathyroids from separate and distinct branches of these arteries, which are often quite long. The thyroid is covered by a soft loose areolar tissue which extends back of the trachea; the para-

thyroids are found in this loose tissue, for in number in more than half the cases investigated by MacCullum. The number found usually depends upon the carefulness of the search. The most frequent position of the upper glands is along the posterior border of the thyroids where the upper artery enters it. The lower gland lies in a notch of the thyroid along its posterior border. These positions are by no means constant; in some cases a gland may be found over the trachea. In another case Dr. Whipple found the thyroid on one side completely atrophied, and the superior and inferior parathyroid lay quite independently of it, loose in the issue. The parathyroid is nearly always loosely attached and can be picked up on the stalk of the vessel. In ligating the thyroid arteries the ligature must be placed inside of the parathyroid branch, which is more difficult in a tumor of the parathyroid. The tetany caused by the removal of the gland can be warded off or stopped by injection of the parathyroid extract or by feeding the glands by mouth. The glands of the ox are used; in this animal two are found—a brown mass on either side at the top of the thymus.

Prostatitis and Prostatic Hypertrophy.—The question of the relationship between these conditions is considered by the *N. Y. State Journal of Medicine* (June, '07). The prostate has been much studied; yet we are still ignorant concerning the etiology of its hypertrophy. The surgical technique is now well-nigh perfect; and has greatly surpassed the pathology. It has been sought to discover what factors of disease or habits, or constitution lie back of the enlarged prostate. Some believe that arteriosclerosis is a factor. The similarity and analogous relations between the prostate and the uterus and between hypertrophy of the former and fibromyoma of the latter are well known. Chronic congestion has long been considered a cause of permanent prostatic enlargement with ultimate structural changes. The supposed causative factor which has received most attention has been inflammation. Goldberg finds that the old question as to whether prostatic hypertrophy has a physiological or a neoplastic pathogenesis is still to be answered. In a few among 250 cases of chronically enlarged prostates he found glands which did not differ from hypertrophied glands, although they were from men of thirty to forty years of age. These prostates were very large and hard; and they narrowed the prostatic urethra in the characteristic manner. No secretion could be expressed. In these cases there was no objective disturbance of micturition such as is usually suffered. There was no retention of urine. But there were the neurasthenic symptoms which accompany genito-urinary manifestations. In another group of cases Goldberg observed both the subjective and the objective disturbances of micturition such as are seen in the second and third stages—acute retention of urine, chronic incomplete retention, acute and chronic secondary infection of the urinary tract, and distention of the bladder. Such prostates were in men between twenty-five and forty-five; and they showed a high degree of diffuse endoglandular and interstitial inflammation. This condition he termed "prostatitis chronica cystoparetica" on account of its pathology and the cystic insufficiency which accompanies it.

These seem to be the only two conditions in young men akin to prostatic hypertrophy; on the one hand is

the picture of prostatism without the pathological basis for an hypertrophy and on the other hand is the actual hypertrophy without the clinical picture of hypertrophy. The matter is very difficult when we come to the hypertrophy of the real prostatic. Among his last fifty cases Goldberg found some form of inflammation in twenty; Metz and Goldschmidt among eighty hypertrophied glands, found abscess in nine and purulent prostatitis in four cases. In two of these latter cases abscess was discovered clinically; and in eight pus and bacteria were found in the prostatic secretion. Among twenty cases Goldberg found in three purulent inflammation due to infection from long-standing use of the catheter; in two cases there was gonorrheal prostatitis in old persons with old hypertrophy. (Still this prostatitis engrafted upon the hypertrophy seemed to have had no influence upon its general course.) In seven cases the condition was reversed: first, there was a chronic gonorrhoea which it did not heal well; then during a year prostatism developed. The only difference between these cases and those put down as "prostatitis chronica cystoperetica" was that they were old instead of young men. Many cases set down as the soft variety of prostatic hypertrophy are really examples of prostatitis. In two cases several years intervened between the subsidence of the gonorrhoea and the development of the urinary difficulty signifying hypertrophy. In five prostatitis who had contracted venereal disease, Goldberg was able to determine the development of a primary prostatitis; these cases gave no reason to suspect a relationship between inflammation and hypertrophy. In thirteen of his fifty cases, gonorrhoeal relation to the disease could be excluded; in two the hypertrophy developed after gonorrhoea had been present for a long time; in four it was from twenty to fifty years after the gonorrhoea that symptoms of hypertrophy developed without any intervening recognizable causative factor being introduced; in seven there was no assignable cause. All were properly cases of chronic cystoparitic prostatitis. Goldberg has very seldom seen hypertrophy follow prostatitis; nor does he believe that gonorrhoea can in any case be regarded as an etiological factor.

Influence of the Maternal Health on the Child in Utero.—J. W. Ballantyne (*J. A. M. A.*, April 27, '07) finds that there are three epochs in a child's life during which the mother's influence is supreme—the antenatal, the lactational and the post-lactational. The extent and character of the antenatal influence (to which he devotes his important paper) are to a large degree unrecognized by medical men. He does not affirm that the maternal psychism has no influence on the embryo; but he regrets that physicians have been led away from the plain facts and ascertainable phenomena of the transcendental transmission of maladies, predispositions and immunities to considering such a will-o'-the-wisp as the effect of the mother's imagination. With regard to the physiological relationship: the fetal and maternal blood do not mix, unless, perhaps, a hemorrhage into the placenta takes place; but there is passage of fluid gases and even solids. This is transplacental interchange. Poisons, toxins, microbes and agglutinins may pass over from the one organism to the other. Why in one case these exceptional substances are thus transmitted and

not in another we do not know; the explanation probably lies in placental hemorrhage and a breaking down of the tissues intervening between the two bloods. Is there any other route by which materials may pass from the mother to the fetus or inversely? Possibly in some instances at least there may be a circulation of the liquor amnii, so that substances may pass in this way. We must never forget that the placenta is one of the fetal organs and a very vital one; and when it is attacked or injured the results to the unborn infant are very serious. Ballantyne concludes that all diseased conditions in the pregnant mother, whether due to microbes, toxic agencies or diatheses, are dangerous to the embryo. The fact that the embryo sometimes, perhaps, often, escapes is no doubt largely due to the protective influence of the placenta. The pathogenic influence may either force its way through the placental barrier and so contaminate the fetus, or it may cause death of the fetus by destroying the integrity of the placenta. The laws regulating placental interchanges have not yet been discovered. The great safeguard of the fetus against the mother's disease is a healthy placenta, which opposes the passage of toxic agencies and which is not liable to their attacks. Perhaps there are medicines which act as placental tonics; but we are not sure. Potassium chlorate and mercury may be of this nature, as may be also some of the organic extracts.

Mastoid Work for the General Practitioner.—J. A. Watson (*Am. Med.*, April, '07) states that all cases of mastoiditis are not similar, as the general practitioner is prone to think; we must differentiate between forms dependent on chronic and those dependent on acute suppurative conditions of the middle ear, and between acute inflammations of hitherto healthy mastoids and acute exacerbations of chronic disease. We should operate upon the mastoid: In acute suppurative inflammation of the middle ear, accompanied by symptoms of mastoid involvement, or by head symptoms of any kind which persist for more than two days despite free drainage from the middle ear and proper palliative treatment; when there is an obvious abscess behind the ear as a result of acute mastoid disease; for profuse discharge from the ear persisting in spite of treatment beyond two months after an attack of acute suppurative otitis media; for acute mastoid disease occurring in the course of chronic otorrhoea; for chronic suppuration of the middle ear which persists in spite of years of treatment by free drainage, cleanliness and local applications; for cholesteatoma, fistulous openings in the mastoid and facial paralysis occurring in chronic otorrhoea. Intracranial complications of ear disease always demand opening into the mastoid as a part of the search for the more serious lesion, provided that a more complete mastoid operation has not already been performed. He who would operate under such conditions must have a thorough knowledge and experience in the principles and technique of modern operative surgery, with a very special knowledge of the anatomy of the temporal bone and of all its associated structures. He should have operated previously on the cadaver, and he should have assisted often in mastoid operations upon the living subject.

Col. William C. Gorgas, of the Isthmian Canal Commission, in a recent address before the graduates of the Cornell Medical School in New York City, explained in a most interesting manner the work of the

army sanitary engineers in eradicating malaria and yellow fever in Havana and on the Isthmus. He believed that the advances made in recent years in tropical sanitation will have much wider and more far reaching effects than freeing Havana from yellow fever or enabling us to build the Panama Canal. The sanitarian can now show that any population coming into the tropics can protect itself against these two diseases by measures that are both simple and inexpensive; "with these two diseases eliminated, life in the tropics for the Anglo-Saxon will be more healthful than in the temperate zone. The advances in tropical sanitation are due to the discovery that the bite of *stegomyia* is the only means of transmitting yellow fever. It took sixteen months to rid Panama of this fever; at Havana it took only seven months. Extermination of this mosquito consists in screening and covering all water receptacles. The anopheles (the malarial mosquito), however, breeds in clean water where grass and algae grow; and the problem of exterminating these and thus protecting the 40,000 men along the line of the canal was a new one. Surface and subsoil drainage, put in for 200 yards around every camp of workers, were the means of destroying the breeding places. Screening the houses, and quinine to condition the men, were also employed. Thus has been accomplished the control of yellow fever and malaria on the Isthmus. For more than a year there has been no case of yellow fever in this region; and "we believe that if it were introduced in the towns of Panama and Colon it would not spread." Malaria is so controlled that the sick rate of the total force in April, 1907, was less than 17 per 1,000. Among the 6,000 Americans employed there is very little sickness of any kind, and their general appearance is fully as vigorous as in the United States.

The Diagnosis and Treatment of Malaria.—D. V. Hoof (*J. A. M. A.*, April 20, 1907), insists on examinations of fresh blood. In stained specimens care must be taken not to confuse the platelets (which are usually numerous in malaria) with the parasites, especially when they are superimposed on red blood cells or are gathered into clumps approximating a segmenting form. When the parasites are very few the Ross method (using very thick smears and after drying, dissolving out the hemoglobin and then staining and fixing as ordinarily), may be useful. The crescents of the aestivo-autumnal type then stand out prominently; but the smaller forms may be lost in the mass. The blood should be studied just before a chill, for it then contains the adult pigmented forms that are most easily recognized. The leucocytic count shows a normal or decreased number of these cells—an important point in diagnosis; for it serves to distinguish malarial fever from some other conditions associated with a remittent or intermittent temperature. The differential count is also often suggestive. In malaria there is a decided relative increase of the large mononuclear cells, with a diminished number of the small lymphocytes and polymorphonuclears. The large mononuclears may also be increased in typhoid, measles, syphilis and perhaps in influenza, but not to the same degree as in malaria. Anemia is an early and rather important diagnostic symptom. The therapeutic test lies in that the tertian and quartan fevers yield very readily to quinine, and the aestivo-autumnal

form, though more resistant, is also very amenable to quinine therapy. If the disorder does not abate under quinine it is in fact not malaria. The regularly intermittent fevers have the recognized course, but the aestivo-autumnal infection may take an atypical course, without definite paroxysms, and be often confused with other diseases. The mistake, however, which is usually made is to confound other diseases, such as typhoid, pulmonary tuberculosis, pyelitis, septicemia and pyemia, acute endocarditis, liver abscess and gallstones, with malaria. In all these the absence of the parasite should prevent the too easy diagnosis of malaria. With regard to treatment Hoof emphasizes that the quinine must be absorbed and enter the blood; it must be administered until every parasite is destroyed. The patient should remain in bed until the temperature is normal and remains so. The drug should be soluble, and the digestive tract should be in a condition to absorb it. In pernicious anemia it should be got into the circulation as quickly as possible—per rectum and by deep intramuscular injection. Rest in bed and appropriate hygienic measures are essential. For the anemia which is a sequel we must give Fowler's solution, up to 12 minims three times a day.

Some forms of gout are considered by Luff (*Practitioner*, February, 1907), as well as some morbid conditions less commonly recognized as being due to gout. This is a disease due to faulty metabolism, probably both intestinal and hepatic, and also to the development of toxins in the intestinal tract. Luff reached this conclusion from observing some cases of colchicum poisoning, in which the symptoms closely suggested arsenical poisoning. He inferred that in toxic doses colchicum is a gastro-intestinal irritant; and if in therapeutic doses it acts mainly in the intestinal tract, its efficacy in gout is probably due to abnormal intestinal changes, which constitute the primary factor in that disease. He advises to begin with a free purge with calomel and salines. No food during the first twenty-four hours, but water freely. Locally to the gouty joint: Sod. carb. \mathfrak{ss} iii., lin. bellad. \mathfrak{ss} ii., tr. opii \mathfrak{ss} ii., aq. ad. \mathfrak{ss} viii. A small portion of this lotion, mixed with an equal volume of hot water, should be poured on cotton wool, previously arranged around the joints and the pack changed every four hours. Internally Luff (as do many others) finds colchicum almost a specific: Colchicine, gr. 1-60; ext. nux. vom., gr. 1-4; ext. hyoscyami gr. ss.; ext. gentian, gr. j. In addition guaiacum resin is indicated in sub-acute and chronic cases in doses of 5 to 10 grains, in capsules, two or three times daily. The lithium salts are not so good as those of sodium or potassium. Ten grains of potassium iodide twice daily is especially useful in cases of gout associated with albuminuria and high arterial tension. Where there is much thickening and oedema about the joint there should be douching with alternate streams of hot and cold water followed by massage. Where there is much uratic deposit in the joints galvanism is very appropriate—10 milliampères with the galvanic pole over the affected region for a few minutes. In the dyspepsia and acidity attending gout Luff would use preparations such as taka-diastase, to aid the digestion of carbohydrates and so prevent the development of fatty acids. In gouty eczema special attention should be paid to the

bowels. We should begin with calomel or blue pill followed by a saline. Alcohol should be absolutely interdicted. During the irritative stages a lotion should be employed: *Liquor plumbi subacetates 3j., liquor carbonis detergens 3j., aqua sambuci ad Oj.* Where there is much pruritus without eczema a carbolic acid lotion is indicated. There must be careful attention to diet, all articles being forbidden which the patient's past experience has shown to produce dyspepsia. Especially should acid fruits and rhubarb be avoided. Anti-gout remedies are not here necessary, but the associated dyspepsia and gastro-intestinal disturbances should be treated by bismuth subcarbonate with sodium or potassium bicarbonate. For gouty insomnia blue pill should be combined with full doses of extract of hyoscyamus. Bromide of ammonia may also be given, but hypnotics should be carefully avoided. An injudicious diet acts mainly by its influence on the bacteria present in the digestive tract. The greater the amount of proteids ingested the greater will be the number of intestinal bacteria with a corresponding increase in the catarrh of the intestinal mucosa. There should be an accurate adjustment of the food for the capacities of the intestinal mucosa, and of the liver. Food should be given in such amounts as the patient can properly metabolise. Animal foods constitute to the majority the most attractive and appetizing forms of diet, and are likely to be taken in excess. On the whole, however, fish, chicken, game and meat are best suited to most gouty subjects, while the farinaceous foods are most likely to disagree. White meats are more digestible than red meats; and the quantity of the latter must be restricted whenever the kidneys are not excreting properly.

The cause and the cure of cancer are discussed by A. C. Jacobson (*Med. Rec.*, April 6, 1907), who advances a new theory in which are considered both Cohnheim's theory and parasitism. Jacobson finds that at the degenerative period of life which is so closely related to the occurrence of cancer, when the sexual function ceases and atrophy of these organs intervenes, there accumulates physiological energy, which finds itself at a loss for wholesome occupation in the economy. Such energy is apt to expend itself in ways sometimes mischievous. Nature abhors unused energies as she does a vacuum; and so cancer is produced. Jacobsen accepts Cohnheim's theory of the etiology of benign growths, the type of growth being determined by the type of embryonic cell which is operative, plus perhaps traumatism, including a position of least resistance. Jacobson here conceives it likely that parasites furnish the source of irritation—as in malignant growths—an incidental factor in both instances. A misplaced embryonic cell may also constitute in itself a competent source of irritation, without having to assume such additional factors as traumatism. For the etiology of malignant growths Jacobson lays down a further factor—perverted energy. There must also be a selective affinity of this perverted energy for epithelial tissues, which constitute the media for the appearance of cancer in tangible form, being as they are most exposed to cytolytic damage and most wanting in resistance because of their high state of differentiation. Radical extirpation of cancer is not usually enough; the fundamental factor is not thus eradicated. The cancer is very like-

ly to recur in or near the scar when the process of repair is complete, or shortly subsequent thereto. The force concerned must somehow be held in check until it shall cease to be operative.

The early diagnosis of gastric carcinoma is set forth by W.G. Thompson (*Cleveland Med. Jour.*, March, '07), who believes that operation is justified when the patient's age is within the average cancer developing period (between 40 and 65 years); when there is a rapid and decided loss of weight and strength without other assignable cause, such as chronic gastric catarrh, neurasthenia, mental strain or worry, diabetes, or other chronic general disease; when there is evidence of some degree of stagnation of food contents in the stomach; when there is failure to improve markedly under treatment after a few weeks' trial. Under these four conditions exploration should be seriously considered despite the absence of gastric pain or other marked gastric symptoms. There may also be a leucocytosis of 12,000 to 16,000 with polynucleosis and a moderate anemia with low color index; a decided dilatation of the stomach, occasional attacks of vomiting, often without definite relation to food ingestion; occult or visible blood in the vomitus or stools, and epigastric or right hypogastric rigidity and tenderness.

Embolism.—A. Hall (*Practitioner*, March, '07) declares that the circulation, like any other system of pipes and tubes, may become deranged, plugging or embolism being one of the possibilities. This lesion is favored by the variation in the diameters of the vessels. It is also dependent upon a pre-existing morbid condition, which produces in the blood stream a substance which cannot circulate. The locus in the circulatory system where the embolus occurs depends upon the size of the latter; and with regard to the embolus the circulation may be divided into: the part extending from the systemic venules to the pulmonary arterioles; another from the pulmonary venules to the systemic arterioles; and a third from the gastro-intestinal venules to the interlobular portal venules. These three parts are separated by impassable capillaries. There are two types of embolism: multiple embolic aneurisms, which originate from valvular vegetations of the left heart associated with rheumatic or infective endocarditis and which are rapidly fatal if they attack the intracranial vessels; and pulmonary embolisms which usually begin as thrombi in the systemic veins, death occurring suddenly and without premonition.

The Widal Reaction in Typhoid Fever.—This test has limitations, states A. T. Laird (*Ann. of Surg.*, March, '07). Its value depends partly upon the technique. A suitable culture must be used and the patient's serum must be collected and diluted to a certain degree. Some cases of typhoid do not show the reaction; a positive finding on the other hand, is sometimes obtained in the course of other diseases, or even in health. Nevertheless the test is of clinical value, and when repeatedly and carefully made should show the reaction in nearly all cases. It can so rarely be obtained from healthy serum or where there are diseases other than typhoid, that the occasional reactions secured from such patients do not greatly diminish the value of the test. While not decisive the Widal reaction is certainly of equal value with any of the clinical symptoms of typhoid.

MISCELLANY

Boston University is to extend its medical course from four to five years; provision is made for work in laboratories and in original research during the fifth year.

A **dental clinic** has been established by the municipal authorities of Erfurt in Germany for the school children of that city. These children number some 10,000.

A **school of Malingering**, states *American Medicine*, has been discovered in Rome in the course of inquiries made by insurance officers in regard to claims for injuries said to be the result of accident.

Medicine in the Duma.—The medical profession, states *American Medicine*, is more largely represented in the new Duma than in the first. There are some twenty-five medical members in the present Russian Parliament.

Compulsory thrift is now compelled by law in Hungary, as it has been since the chancellorship of Bismarck in Germany. The Hungarian Chamber of Deputies has passed a measure providing that insurance against sickness and accidents shall be compulsory.

Hydrotherapy in Vanderbilt Clinic.—This clinic, which is a part of the College of Physicians and Surgeons in New York City, is to be remodeled so that a department of hydrotherapy may be established; there will be a complete equipment with baths and rain douches.

A **hospital camp at Norfolk, Va.**, has been arranged for by the Bureau of Medicine and Surgery; it is to be maintained during the period of the Jamestown Exposition. Surgeon John F. Urie is to be in charge. It does not seem that his time will be very fully occupied.

Double Fees on Sunday.—The French Congress of Practitioners has approved a plan to charge double rates for professional calls made on Sunday; it has already been adopted in the Lyons district, the public having been notified to this effect by the local medical society—*J. A. M. A.*

Electric belts for mud baths are used at Franzlobad. These baths are said to contain sulphuric and other acids. A galvanic current is generated when the patient steps into the bath wearing a belt containing strips of zinc connected by a wire with strips of copper at the wrist. It seems that the current enhances the medicinal action of the mud baths.

The free milk and eggs heretofore supplied by the New York Health Department as a special diet for consumptives, will no longer be dispensed because of lack of funds. During 1906 the board furnished over 22,000 quarts of milk and 44,500 eggs in Manhattan alone. Altogether 50,000 quarts of milk and nearly a hundred thousand eggs have been given away.

Eyestrain Mistaken for Appendicitis and Cholelithiasis.—E. M. Alger (*N. Y. Med. Jour.*, June 8, '07) reports a case in which the principal symptom was chronic, severe pain of several months' duration; this symptom was completely relieved by glasses. Three years later, the glasses having been lost, the pain immediately returned. It was again relieved by the wearing of glasses. Two surgeons had diagnosed the case as of abdominal origin.

Primary empyema is a very rare condition, states T. Lloyd (*Post-Graduate*, Feb., '07). The transition of a simple serous effusion into a purulent accumulation is not as a rule recognized. The accurate determination of the presence of pus is postponed, causing greater damage to the lung and, by absorption, to the general condition. The cases diagnosed as unresolved pneumonias are often really cases of empyema; and the aspirating needle should be employed to make the distinction. The X rays are also valuable when used by an expert. In cases of empyema after operation where lung expansions do not occur, Lloyd pushes down all adhesions about the collapsed lung, producing expansion by this means.

The relative value of culicides has been investigated by the United States Public Health and Marine Hospital Service (*J. A. M. A.*). The fumes of pyro-fume, a liquid derived by fractional distillation from pine wood, are deadly to the mosquito, but if they are much concentrated they soften varnish and leave deposits on surfaces. The liquid is moreover very inflammable. The fumes of camphor-phenol possess no powers of penetration, diffuse poorly and are diminished in efficacy by low temperatures. Sulphur has long been used in quarantine practice, and it has proved effective in tests demanding all the necessity for penetration and diffusion likely to be found in practical fumigation, but its fumes are in a measure destructive. If it were not for this it would meet all the requirements of a gaseous culicide.

Empty Hospitals for infectious diseases were recently predicted by Treves; this result is to be brought about by hygiene. The fight is against millions of microbes; and the weapons, reports the *Jour. A. M. A.*, are sanitary regulations, municipal government, the sanitary inspector and the health officer. The mystery of the ancient doctor, his long words and extraordinary prescriptions is passing away. The multitude of shelves of bottles which surrounded him also is passing away, and is being replaced by simple living, suitable diet, and plenty of sun and fresh air. Treves looks forward to the time when people will leave off the extraordinary habit of taking medicine when they are sick (he will, however, probably not see it in this generation) and when it will be found as anomalous for persons to die of scarlet fever, typhoid, cholera or diphtheria as for a man to die of a wolf's bite in England.

A **Federal Sanitary Bureau** is strongly advocated; and with much good reason. Congressman Leake, of Jersey City, recently observed: "Why should not the United States Government have a bureau of sanitary science and spend its money for a commissioner of sanitation as well as for a Department of Agriculture? The Government requires the services of a physician for the solution of several of the questions discussed at the late session of Congress. Why should not that commissioner of sanitation be a member of the Cabinet? In two-thirds of our federal area there is an utterly insufficient record of vital statistics. Even when records are kept the various cities and States have differed so widely in their methods that it is difficult for medical statisticians to compare the figures to any scientific advantage. In the event of the establishment of a Government bureau the States and municipalities would have a model and could be placed under the supervision of the Federal Health Commissioner.

VENTRAL AND EXTERNALLY LATERAL ROTATION OF THE HILUS RENALE KIDNEY DUE TO RENAL ARTERIES.

BY BYRON ROBINSON, M. D., CHICAGO.

FIG. 1. This specimen I secured from a personal autopsy. It was an adult male. The arteria renalis sinistra R. A. passes (with its branches) mainly to the dorsal renal labium and also dorsal to the ureter (with its 5 calicular pedicles). The arteria renalis dextra passes chiefly to the dorsal renal

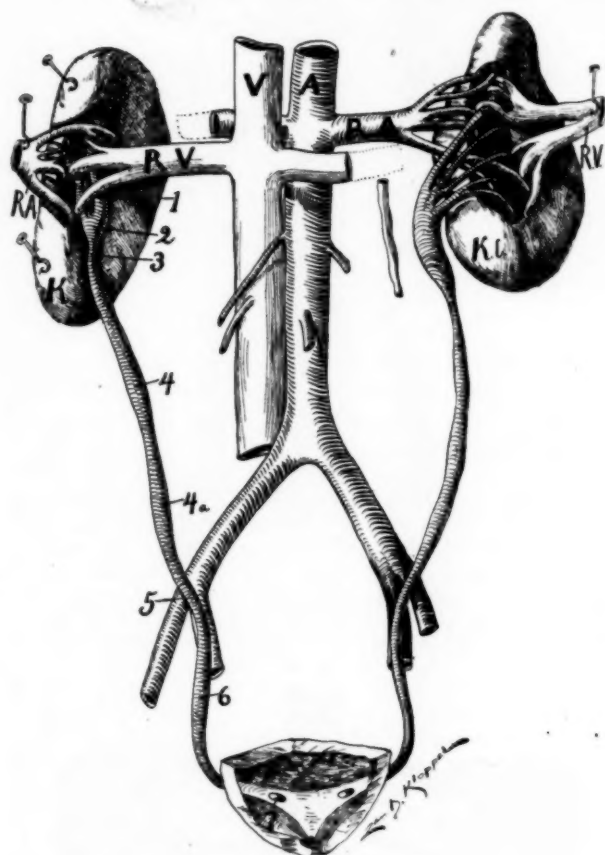


FIG. 1.

labium however, the ureter passes between the dorsal and ventral branches of the arterial renales. R. V. Vena renalis 3, 5, 7, proximal, middle, distal renal isthmuses. 2, 4, 4a, 6 proximal middle distal ureteral dilatations. Note the anomalous calicular pedicles. This illustration from an adult male is one of the most demonstrative of renal rotation due to vascular influences. The hilus renalis is directed ventralward. The renal organs are not lobulated.

Fig. 2. In this ventralward rotated kidney it is evident that the renal vessel passes chiefly to the dorsal renal labium—hypertrophying it. The contour of the hilum renalis in this subject is in definite, its dimensions are extensive, its depth—sinus renalis—is limited. The renal arteries multiple (bilaterally). The renal organ is lobulated (irregularly A. R. Arteria renalia. The

calyces and pelves are duplicate, which coalesce into one ureteral pelvis (2). The hilus renalis is directed ventralward with hypertrophy of the dorsal renal labium.

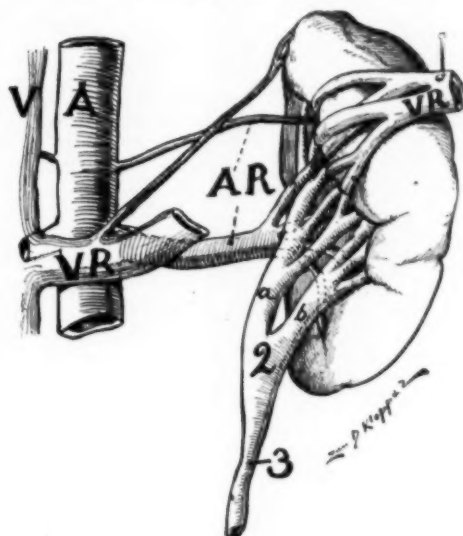


FIG. 2.

VENTRALWARD ROTATION OF THE HILUS RENALIS DUE TO VASCULAR INFLUENCE.

3. Proximal ureteral isthmus. The calicular pedicles or stalks are elongated, bifurcated and coalesced. I secured this specimen at an autopsy through the courtesy of Dr. Bliss.

Fig. 3. This specimen of multiple renal arteries was removed from the body, the ureters injected with liquid paraffin and the arterial vessels injected with red lead and starch. Subsequently I dissected and prepared it. The exact relations of gross circulation are presented with the usual ureteral isthmuses—proximal (3), middle (5), distal (7) and ureteral dilatations—proximal (1 and 2), middle (4 and 4a), distal 5a, 6, 6a). The renal arteries are multiple, all pass through the hilus renalis (however, frequently the accessory renal arteries penetrate the renal substance without first passing through the renal hilus Y, the proximal arterio-ureteral crossing (the point of ovarian artery and ureteral crossing)).

Fig. 4. Represents the influence of vessels on renal rotation. The hilus renalis of each kidney is practically on the external lateral renal surface—the chief blood supply is conducted to the dorsal labium in each kidney. The position of both kidneys is abnormally distalward. The calyces and pelves are in both kidneys prominent and distorted. The arterial supply multiple (4 arteries) to both kidneys. The renal apparatus is a fused kidney as shown by a fibrous band (the renal isthmus) extending from one distal renal pole to the other ventral to the aorta. Observe that in neither kidney do the multiple renal arteries pass through the hilus renalis. The iliac arteries are of unusual length. A single renal vein from each kidney opened in the inferior vena cava. The renal form is distorted. (Illustrations from Alfred H. Young and Peter Thompson.

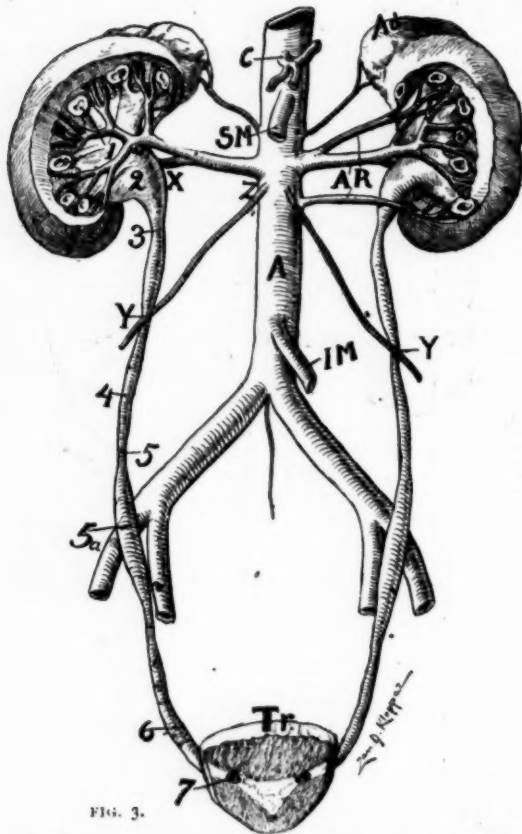


FIG. 3.

MULTIPLE RENAL ARTERIES MAY NOT ROTATE A KIDNEY IF NORMALLY DISTRIBUTED TO THE RENAL LABIA.

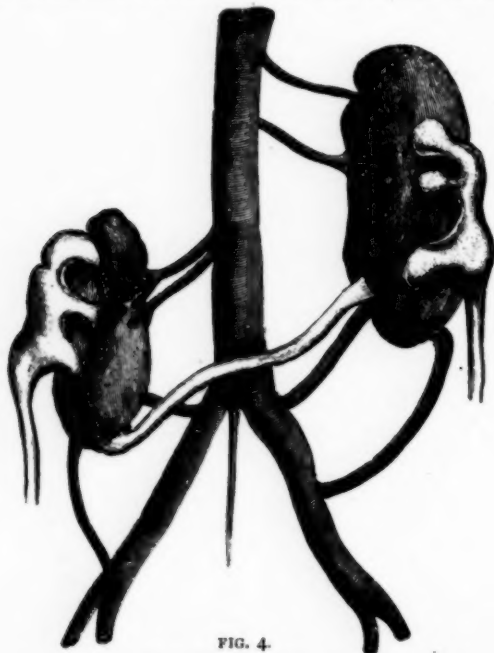


FIG. 4.

INFLUENCE OF VESSELS ON RENAL ROTATION.

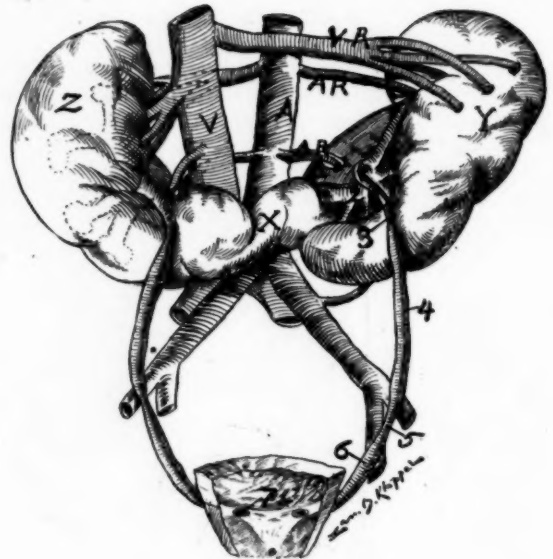


FIG. 5.

HORSESHOE OR FUSED KIDNEY DEMONSTRATING THE INFLUENCE OF ROTATION ON THE RENAL LABIA.

Fig. 5. This rare specimen I secured at an autopsy through the courtesy of Dr. A. M. Stober and Dr. Walsh. The proximal arteria renalis bilaterally supply the ventral renal labia hypertrophying and rotating them. The distal arteria renalis bilaterally supply the dorsal labia hypertrophying and rotating them. The renal arteries pass mainly through the hilus renalis, the renal veins pass to the kidney partially externally to the hilus renalis. The ureteral isthmuses (3, 5, 7) and the ureteral dilatations (1, 2, 4, 6) are evident.

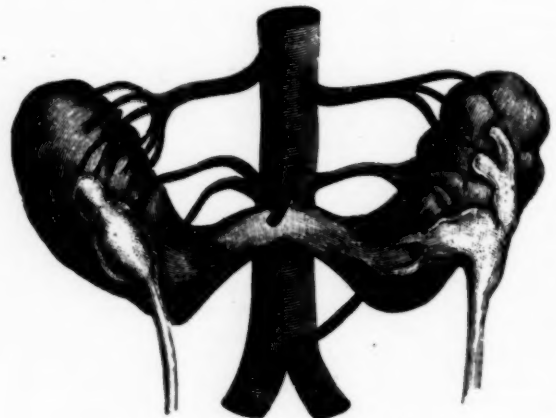


FIG. 6.

RENAL ROTATION FROM EXCESSIVE BLOOD SUPPLY TO RENAL LATERS.

Fig. 6. An illustration to expose the renal rotation from excessive blood volume to each dorsal renal labium, fused kidney with renal isthmus ventral to aorta. Hilum renalis on ventral and external lateral renal surface in each kidney due to excessive blood volume

to each dorsal renal labium. Calyces and pelvis distorted. Multiple renal arteries to each kidney. There was a single vein from each kidney terminating in the inferior vena cava.

Fig. 7. An illustration to expose renal rotation from excessive renal blood supply to dorsal renal labium. Right kidney lies in lesser pelvis and is supplied by 4

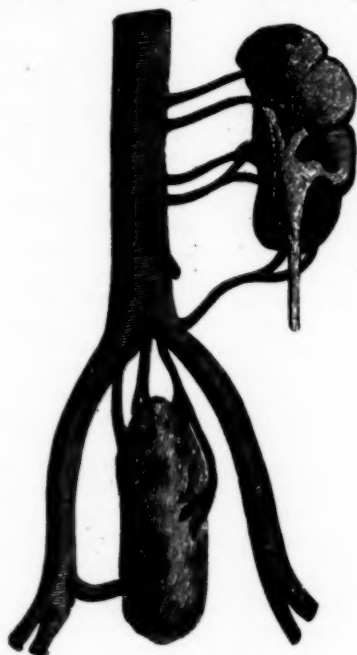


FIG. 7.

renal arteries. It is malformed and in malposition. The iliacs are abnormal in length. Left kidney, position and form normal, however, its surface is lobulated. Hilum renalis on ventral renal surface with abnormally arranged calyces and pelvis. Arteria renalis five in number chiefly supplying the dorsal labium. One renal artery of each kidney originates from the common iliac. The renal arteries chiefly pass through the kidney externals to the hilum renalis (Illustration from Alfred H. Young and Peter Thompson).

The purity of chloroform is essential to be tested because it is so easily decomposed by the action of air, light and moisture (*Lancet*, April 3, '07). Such decomposition is always accompanied by the production of hydrochloric acid, but in the beginning the presence of minute traces of the acid is not always detected by silver nitrate. Breteau and Woog use a simple test: a small cylinder of elder pith is dyed in a saturated solution of congo red in absolute alcohol, and placed in the chloroform. Beginning decomposition is detected by the change in this indicator from bright red to blue, owing to the presence of hydrochloric acid. By dyeing the pith the chloroform does not undergo contamination with the coloring matter. A piece of the dyed pith should be put into a bottle of chloroform when it is first opened, and kept there until the bottle is empty. It can be used repeatedly so long as it remains bright red in color.

THE PROPER MANAGEMENT OF THE INFANT.

BY W. T. MARRS, M.D., PEORIA HEIGHTS, ILLINOIS.

INFANT mortality is decreasing each year and this fact is due to the search-light of scientific truth that is being thrown upon the subject. It is a matter in which the laity—mothers—need all the knowledge of a practical, usable character that can be brought to them and the ethical bars should be let down on this point so that physicians everywhere may educate parents and the public on the proper care and training of infants. It would perhaps be of value to physicians who have a goodly clientele of general practice to have published pamphlets in which is set forth good, practical ideas on the management of young children and distribute these where they will do the most good. Perhaps some competitor who is hidebound in ethical conservatism might object to this and raise the cry of "advertising"; but such objections are not serious if we reflect for a moment that such gratuitous information is a labor of love and that the physician who disseminates it is simply working for humanity and not doing anything to further his own pecuniary ends.

In this article I may mention some things that may to the average reader seem commonplace, but for that very reason I think their consideration worth while. We are inclined to pass by as being unimportant a great many little details that in the aggregate is a matter of vital importance. We are always hovering between extremes in the matter of caring for the baby, as indeed we are in so many other things medical, but the truth and the best way of doing things usually lie in the happy medium. The facts embodied in this article are such as may be extended to those whose lot it is to take care of the young child.

As the new-born infant is from a very warm climate, it should necessarily be surrounded with plenty of warmth to maintain its vitality. If this is not properly attended to the babe shivers, sneezes, becomes cyanotic and perhaps a little later an acute cold and bronchial irritation supervene. Such a condition of affairs is starting the little one out under unfavorable auspices and of course places its life more or less in jeopardy. But here is where mothers and nurses are prone to fly to the other extreme and surround the baby with too much heat, in consequence of which the skin is bathed in perspiration and the vitality in this way lowered. In a day or so a beautiful heat eruption has appeared and this contributes to the little fellow's miserable feeling and he is peevish and fretful. If the baby is kept too warm for a few days or weeks the pores of the skin are open, his power of resistance is enfeebled and he is in a fair way to take cold if he is subjected to an atmosphere of a slightly lower temperature. It is as bad a practice to keep the baby too warm as it is to freeze it. The baby should not be kept in a temperature around the one hundred mark only a few hours after birth, but should slowly and carefully be introduced to an atmosphere that is a little cooler. If this is done in a judicious manner there will be a great lessening of his liability to colds and catarrhal conditions. If babies are educated and accustomed to it they will in a few weeks stand very near the temperature that is most comfortable to adults. This is at once apparent and plausible when we reflect upon the fact that the baby's circulation has almost the double rapidity of that of adults. On the other hand the baby's tissues are soft and are composed mainly of water and

do not retain the heat in the manner of the grown-up.

The bath for the first few months should be once daily and the water should be at the body temperature. It should not occupy much time and the skin should be thoroughly dried without much rubbing. Soaps containing much alkali should not be used. If the baby's skin becomes chafed or inflamed the chances are that it is bathed too often or too strong soaps are being used. In such conditions it is well to not use soap at all but instead water in which oatmeal or some cereal product has been soaked for a while. A weak saline water is also strengthening to the skin. After the first six months the temperature of the bath should be gradually lowered. After the first dentition a cold sponge bath in the morning is to be preferred and should not last over one-half minute, followed by brisk rubbing. In many children there is not sufficient reaction from the bath as manifested by pallor, blue lips and other evidences of weakness. Such children suffer from anemia and they should receive warm sponge baths, preferably in a recumbent position. The first few baths the infant receives are more for the purpose of stimulation than for cleanliness *per se*. Many prefer not to put water on a baby in making the first toilet but use instead an inunction of olive oil, vaseline or hog fat. There can be no objection to the use of water if friction is not used in drying it. Indeed, the lusty crying resulting from the application of water makes for the health and strength of the babe, by causing a good pulmonary expansion. The caseous covering is sometimes quite adherent and may necessitate soap and water to effect its removal. Many physicians prefer to first apply an oleaginous product and follow it with a little soap and water. This on the whole is a satisfactory procedure. An egg thoroughly beaten cleanses untidy hair about as quickly and agreeably as anything that can be used for that purpose.

The hygiene of the mouth is important when we consider the fact that many forms of bacteria are introduced into the system by this route. It is a popular belief among the laity that a baby that is given a teaspoonful of cold water soon after it is born will never be troubled with stomatitis or other form of sore mouth. If this were done every day, or several times a day, perhaps the rule would hold good. Babies do not get as much water as they require, anyway. When we reflect upon the fact that their body weight is composed mainly of water it is apparent that a portion of this should be ingested as aqua pura instead of altogether in milk. Babies often cry and fret simply because they are thirsty. Excretion and elimination with them is very rapid and necessitates the ingestion of fluids in abundant quantity. A portion of it should be in the form of water, preferably distilled. Babies often nurse when they are not hungry but do so simply to satisfy their thirst. Before nursing or feeding it is often well to give the baby water that it will not take its milk in excess in order to satisfy thirst. Babies should be trained to take water from a nursing-bottle when young and to drink it from a spoon or cup as they grow older. It is a good rule to cleanse the baby's mouth two or three times daily with boiled water to which has been added a pinch of soda or boracic acid.

The new-born child should be kept in quiet and darkened seclusion for a few days after its birth. There are many reasons for this. The eyes are very susceptible to strong light and if thus exposed a mild degree of in-

flammation is likely to ensue. The eyes for a few days should be cleansed with a boracic acid solution. This solution is chemically not unlike the tears, which in the babe are not secreted until the second month. Hence the great value of this agent in case there should be any inflammatory action. It has been the rule with physicians in cases of suspected ocular infection of a specific character to instill a few drops of a one or two per cent. solution of nitrate of silver into the eyes. This procedure is sometimes attended by danger, as in the hurly-burly of making the first toilet mistakes may be made. The writer knew one physician to make the mistake of dropping carbolic acid into the infant's eyes. It is thought by some very competent oculists that a saturated solution of boracic acid is sufficient in case of specific infection and the element of safety attending its use is certainly a matter to recommend its employment.

Another reason for keeping the rooms shaded and the baby quiet is that its special senses do not require stimulation. If these senses are unduly stimulated by external influences it soon becomes a creature of habit. A light left burning in the chamber one night makes an impress upon its delicate nervous system and it is demanded the next night. The little babe is just as susceptible to noise, motion and other things that affect his senses. The practice of showing off the little one to visitors is a stunt that is to be condemned. All of these things tend to produce nerve instability and unrest and the mother then wonders why her babe is cross and fretful. It sleeps, or should sleep, profoundly until after the first month. During this time if in a normal condition it should sleep from twenty to twenty-two hours of the twenty-four, only awaking from hunger or discomfort. The amount of sleep gradually decreases after the first month. The child should from the start be trained to correct methods of sleep. This should be done without rocking or jolting. It should take two or three long sleeps during the twenty-four hours, the remainder being naps. It should be trained to take these long sleeps at night, as nocturnal seances are not conducive to the health of either child or parents. By permitting the child to take only short naps during the day it may be trained to take its long sleeps at night. Regularity of sleeping not only makes the care of the child easier, but its health depends upon it.

Two conditions are to be taken into consideration in the selection of clothing—warmth and lightness. Canton flannel is to be preferred for diapers on account of its superior absorbent qualities. The chest should at most seasons of the year be protected by flannels. Bands about the abdomen should never be tight enough to embarrass respirations, since abdominal breathing prevails in the young child. The umbilical stump is better enveloped with absorbent cotton. If it is kept dry and clean there is seldom any trouble about it healing and sloughing off. Infants who have very little fat about the abdominal walls should wear a band for several months as a protection to the internal organs. Frequently the child is dressed too warmly. For warm weather the outer clothing should be very light and the under clothing thin flannel or gauze. Extra wraps may be added to meet the changes of morning and evening temperature. The very lightest flannel should be worn at night. Children should not be overloaded with clothing at night, as it is very often the cause of restlessness. These last remarks apply with more

force to children that are a little older. After the child is a few weeks old it cannot be dressed too lightly for warm weather.

The matter of remedies for colic and minor ailments is worth a little consideration. It is a good rule never to begin using them if it can possibly be avoided. I would especially urge the avoidance of habit-producing drugs, for their baneful effects may be so remote as to find expression in the after life of the child. Opiates and sedatives have a harmful effect both immediate and ultimate. The same may be said of whisky. Alcoholic stimulants lull the child into passivity very promptly and for the time being do not produce the damaging effect upon the secretions that is wrought by narcotic drugs, but who can say how far-reaching this diminutive tipping may result? Perhaps many of our inebriates and dope fiends had their first lessons on their mothers' laps. We are all mindful of the effects of these things upon the mature individual. Then is it not possible, yes, probable, that this indiscriminate giving of dope to children whose brains and nervous systems are in a delicate formative process may eventuate in some habit or perversion? There are conditions, it is true, when it may be deemed necessary to give remedies of this class temporarily, but their use should not be prolonged. As a rule drugs that produce nausea, relaxation and eructations are the least objectionable, as there is not much danger of a vicious habit for them being engendered. Among these are apomorphine in very small doses, ipecac, asceftida, essence of peppermint and perhaps camphor. Tobacco smoke blown about the baby and under his clothing, while not an esthetic remedy, is very effective in producing relaxation and relieves colic, earache and other painful and spasmodic conditions. Teas of all kinds in any quantity are objectionable, as they create a gas on the stomach and impair the digestive function. Soothing syrups invariably contain opiates or sedatives that ultimately produce harm. Many children have been drenched to death on them. Syrups and elixirs of pepsins of the ordinary class are not good, as then contain only an infinitesimal quantity of pepsin or pancreatin and the tax put upon the stomach to digest the syrup in which they float outweighs all the good that we could expect to derive from them. Cathartics are often essential and in general do not produce harm only as they induce the habit of constipation. No one cathartic should be employed for an indefinite time on account of the tolerance gained to it by which a larger and larger dose is necessitated. It is well to alternate physic with enemata and clysters. In young babes a teaspoonful of cream will produce catharsis and is usually no more objectionable than castor oil. The latter, however, holds a place in the therapeutics of childhood and infancy that can not be supplanted by anything else. From an extended observation the writer is of the opinion that mercury in the form of the mild chloride is the best all-round baby medicine we possess. In appropriate doses it is a benign remedy and acts favorably upon secretion and excretion. Our Hahnemannian friends have long employed this drug to which we may ascribe much of their success in infant therapeutics.

The nourishing of the child is of the greatest importance and is here considered last. It would sound like a platitude to say that Mother Nature who does most things well has prescribed the best method of pro-

viding nutriment for the child if we would only heed her teachings. Mothers are learning more and more all the time that no artificial method of feeding can take the place of the lacteal fountains on her own bosoms. It is not at the present time the travesty on American motherhood that existed a few years ago in this matter; for women are not now yielding to the dictates of pride and society to the extent that they once did in refusing to suckle their babes. If physicians will continue to agitate this matter and show mothers that it is their imperative duty, if they are at all capable, to nurse their little ones from their own breasts the nursing bottle in a few years more will not be even as much in evidence as it is at the present time. About the only conditions in which the mother is unable to nurse her child is in case of the milk being scanty or so poor in quality as to be insufficient to nourish it; also in tuberculosis and other grave constitutional diseases.

A fact difficult for the average mother to understand is that newly-born babes, as a rule, do not require nourishment in any quantity before about the third day. A little sweetened water, two or three teaspoonfuls given occasionally, usually satisfies the slight hunger and thirst. An exception to this rule is that the child may the first day or so have a fever, sunken features, and all the appearances of impending death. In such cases feeding may be necessary. If food is withheld the temperature rises higher and death will probably follow. The administration of water and proper nourishment may be followed by immediate improvement. Quite often mothers make the mistake of thinking they have an abundant supply of good milk on the first or second day, when it may be only an over-supply of colostrum which is intended to physic the child. Too much of this should not be nursed, as extreme diarrhea and gastrointestinal irritation may be thereby produced. Milk of true nutrient value seldom appears before the third day.

Correct nursing habits should be instituted from the start. Regularity should be a watchword. Mothers should have it dinned into their ears how harmful it is to nurse the babe each time it cries. It is more essential that the babe's stomach have intervals of rest than that of the adult. To cause the digestive fluids to be kept constantly secreting is to work a great injury to the child. A certain amount of crying is necessary, as that is the manner in which the young babe takes exercise. The mother should study the cry of her child that she may know from whence it arises, and the cry of habit may soon be distinguished from that of hunger or pain. After the third day the child should not feed oftener than ten times in twenty-four hours for the first six months. Thus the mother may be enabled to sleep well, which is one of the essentials of a good milk supply. For the first six months the child should gain six ounces or more per week. To ascertain this it should be weighed often. The scales are an unerring guide as to the nutritive process of the child. If it does not gain in weight the nourishment is at fault and the milk inadequate. Artificial feeding should then, either wholly or in part, be commenced. Weaning should take place about the tenth month, as infants at this age can usually be able to digest a class of foods that renders further breast-nursing unnecessary. If the child has been trained to take milk or water from a bottle gradual weaning may be made

an easy matter. Sudden weaning should not be resorted to only in case of serious disease of the mother or where a grave condition of the child demands it.

Having briefly considered the general conditions of normal feeding, we now come to the matter of artificial feeding which may be necessitated. Several elements in various combinations exist in human milk in a way that is essential to the nutritive process in the child. Every artificial food is based upon this fact and the more nearly it approaches human milk the more nearly is it an ideal food. These elements are fat, sugar, proteids, mineral salts and water. The proteids may practically be considered the albumenous elements. Cow's milk contains all these elements, but not in the proportion required by young children, as will be noted by a comparative study of the following tables:

	Woman's milk. (Average.)	Cow's milk. (Average.)
Fat	4	3.50
Sugar	7	4.30
Proteids	1.50	4
Salts	0.20	0.70
Water	87.30	87.50

It will be readily seen that cow's milk contains an excess of proteids. This is the element that is likely to cause the most trouble. It is the chief causative factor in the habitual colic and indigestion of artificially-fed babies. In young infants the proteids should be reduced to one per cent. and gradually increased. This is the main secret of success in feeding cow's milk. The reduction is effected by the addition of water or lime water. The latter in official strength for warm weather has much to recommend it. Cow's milk being slightly acid the lime water renders it alkaline or neutral. If the lime water be not used one grain of bicarbonate of soda should be added to each ounce of milk. If the milk is diluted once the proportion of proteids is 2 per cent.; diluted twice, 1.33 per cent.; three times, 1.00 per cent.; four times, .80 per cent. Sufficient dilution should be made at the start and increased as the child gains tolerance. The salts of cow's milk are also thus diluted so that they are easily assimilated. Sugar being low in cow's milk it should be supplemented by the addition of milk sugar as a sweetening agent. It is less liable to cause fermentation than cane sugar, is an aid to digestion and comes more nearly supplying a necessary element. The milk sugar should be dissolved in boiling water and then added to the milk. Cane sugar being much sweeter than milk sugar, the latter may be used in double the quantity of the former. Adjacent to our largest cities are now found factories where milk may be obtained calling for any special modification. This may be very nearly a perfect method of feeding, but it is within the reach of only a limited number of people. Where care and judgment are exercised in the proper preparation and modification of it, cow's milk may, for all practical purposes, be prepared at home. It is a mistake to feed an infant exclusively from the milk of one cow unless the milk is positively known to be all that is required of it. The milk from a mixed herd comes much more nearly generally in being an average milk. It is a fact worthy of mention that the cows should have good feed and kind treatment and that sanitary conditions be observed in milking and in the handling of the milk. Negligence in failing to carry out a certain degree of cleanliness

should be a punishable offense. The milk bottles should be a kind most easily cleansed and sterilized. It is a deplorable fact that the nursing-bottle with the long tube attached is still occasionally seen. During warm weather the bottles should, when not in use, be kept in a boracic acid solution and before using should be sterilized in boiling water. The mother can adopt no better rule than regularity of feeding and the securing of good sleep at night. The latter means a diminution of the feedings at night. No accurate rules can be laid down by which to determine the amount of food required by a child for one feeding or for one day. So much difference exists among children in this regard that each child becomes a problem unto itself. An average child should have ten feedings of not more than two ounces each per day the first month; from the second to the fourth month eight feedings of about three ounces each; from the fourth to the ninth month, six feedings of about six ounces each. The milk may be varied considerably to meet certain conditions. If the babe gains too slowly the sugar is, as a rule, low. Constipation is the common evidence of want of fat. Perhaps the most frequent cause of trouble is due to the fact that too much food is given. It seems hardly necessary to say that the milk should be absolutely sweet. Milk may be sweet in the common acceptation of the term and still not be of the best quality for nourishing the infant. *Fresh* is a better term to ever keep in mind. Milk when fresh is a fluid not wholly unlike the blood and this life it must possess if we would expect the most nutritive qualities from it. Milk that is several hours old is unfit for nourishing the infant.

It is best to defer other foods until the eighth or ninth month when the child is acquiring the power of digesting starchy foods. A gruel may be given made of oatmeal, barley, arrowroot or some of the farinaceous foods. Barley water is quite efficacious in overcoming diarrhea. Beef juice may also be given about the tenth or eleventh month, either alone or with milk. It should be given in not more than one-half ounce feedings at first and increased to two ounces. Beef juice is best prepared by first slightly broiling the beef and then extracting the juice with a lemon squeezer. It may be given warm or cold, but not hot, as heating coagulates the albumen.

This article would be incomplete if some suggestions were not given for feeding in difficult cases. It is often a hard matter for the child to make any progress during warm weather. So often food is given in a strength that disturbs digestion. A larger quantity of greater dilution is better borne than smaller quantities of more concentrated food. As I have previously emphasized, young children should have plenty of water which alone will relieve many digestive troubles. Peptonized milk is useful in some cases, but there are serious objections to its prolonged use. Gruels and mucilaginous preparations should not in the early months be used to dilute the milk on account of the starch they contain, as the young child has very feeble powers of converting starch into sugar. The same applies to older children who suffer from general debility and digestive disturbances. Sometimes when raw milk is not digested improvement takes place after the milk is sterilized. Many sterilizers are on the market, most of which give satisfaction. The process is more essential in cities where the milk is not obtained for several hours after milking. Sterilization at 212 degrees F. destroys all bacteria, or

practically all. As the danger from tuberculous milk is now thought to be greatly exaggerated, the process of Pasteurization—which is simply sterilization at 167 degrees—is thought to be all that is ordinarily required. Where it is desired to keep milk several hours without ice, as in traveling, it is best to sterilize at 212 degrees. When treated at 167 degrees milk will keep sweet at ordinary temperature for several days, although its nutritive value may be open to question. Unless the conditions seem to demand it sterilization has no advantages over good raw milk, properly modified. The heat impairs the value of the milk in many ways. Sometimes in obstinate cases of indigestion it is best to withhold all milk for a time and give one of the malted foods with water or animal broth. The objection to most of the prepared foods on the market is that they contain too little fat and too much starches. Many of them are useful to supplement other methods of feeding, but a child fed exclusively on them is prone to rickets or scurvy and a state of malnutrition may ensue after there has been a period of apparent thrifty growth.

The "second summer" is a term that formerly brought dismay to many mothers, as it is then that the troubles of dentition are supposed to arise. However, most observers are now inclined to regard the eruption of the teeth as being on the whole a physiological process, and when health and nutrition are above par this process is not attended by many symptoms out of the ordinary. Overfeeding and improper feeding are usually at the bottom of the trouble so often attributed to the cutting of teeth. The diet for this age should be milk, some farinaceous foods, bread, broths, eggs and a small allowance of fruits. If trouble does arise during teething all solid foods should be interdicted. Rare scraped beef may be given and is often followed by immediate improvement. The starches should be reduced and the milk modified to suit the child's digestion. It should be remembered that a child with very weak assimilation at this age may require the milk to be diluted to the weakness needed by a babe only a few weeks old. During the teething age food should not be given oftener than every three hours. The tendency at all ages is to feed too much and too often.

Efficiency in Health Administration.—Dr. George A. Soper recently pointed out before the section of Public Health of the New York Academy of Medicine, that the authentic sanitary knowledge now desired by the public has been difficult to obtain, because universities have neglected to teach adequately preventive medicine, and because physicians do not fully recognize their importance as sanitary teachers. The public has not profited to the fullest extent, states the *J.A.M.A.*, from the available sanitary knowledge because of the general failure under our political system to secure as public officials men with the necessary special training and expert knowledge. In the history of sanitation—as in every other aspect of civilization—the great strides of progress have usually grown out of emergencies. It were better indeed to make the necessary preparations for improvement while there is yet ample time for careful investigation and preparation. Hence public opinion and the attention of those with appointive powers should be continuously directed toward the vital importance of special qualifications in the public service.

OBSTETRICAL MISFORTUNES.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

EVERY physician in general family practice at some time has met or may expect at some future time to meet with a humiliating experience of disillusion in obstetrics. Nature does not in every instance attain to complete perfection of purpose in human procreation. The incentives to approach the risks of begetting offspring through the fascinating gates of pleasure-seeking functions are seldom lacking or dormant; but there exists no absolute predestination of exemption from individual catastrophe in the fruitage of conception whether impregnation occurs by chance accident or by voluntary purpose. Hence no physician, a month in advance of anticipated delivery, writes it down as unqualifiedly beyond question that his next case of parturition will prove a happy realization.

That the expectant mother has daily carried an anxiety brooding along between hope and suspense in regard to the product of her own womb is frequently blurted into open confession the minute that the child has arrived in view of the open eyes of the world: "Doctor, is my baby all right? Is it perfectly formed? Is it marked? Are you sure?" Such interrogations are not lightly made. If one can answer frankly that the baby is all right, he may expect a response like this: "Oh, I'm so glad to know that, for I had a fright, and have been afraid that it would show on the child!" But first let me talk of the serious misfortune of meeting a case of misplaced placenta, recognized as placenta previa or placental attachment in part or wholly in the lower segment of the uterine cavity, and with the body of the unborn child above or behind this obtrusive impediment to safe and successful delivery.

Under these faulty circumstances it is readily understood that with the eventual contractions of the fundus of the womb which presses upon the contents for ejection, as upon the child for its delivery, with resulting dilatation of the lower uterine channel preparatory for exit of the child, the obtruding placental attachment to the blood vessels of the womb will necessarily become disrupted from its circulating connections by each propulsive effort of nature—and then with each retraction from pressure, persistent hemorrhage consequently ensues prior to completed birth. Any considerable continuance of this unfortunate condition either drains away by exhausting degrees the vitality of the woman in travail, or, huge gushes of her blood may precipitate sudden collapse with the child yet unborn. If but an edge of placental structure project into the cervix the degree of danger is somewhat reduced, but when a large segment of the placenta lies across the path of the shortening cervix and covers the os at any proportional depth, the source of imminent peril to mother and child clings in hostile ambush just away from sight and possibly beyond practical reach except by heroic siege appalling to both the obstetrician and the patient.

A man constituted with a sensitive plexus of comprehension will naturally pause, even shrink in perplexity before the clanking sabres of redoubled perils. Will he extemporize expectantly with doses of ergot, with colpeurynter against the os and charged expansively with cold water, with tampons of Monsel's solution or of astringent alum, while the undelivered woman is gradually bleeding herself to death?—or will

he rush in by way of physical severities to drag from the womb its endangering contents, but thereby possibly make himself the woman's executioner because of forcing open the os uteri, by tearing or pressing aside the presenting placenta, by seeking a blindfold grasp somewhere on the probably already dead infant and forcing it from the womb as the doomed mother in her parturition hour succumbs with dying gasp? There is the awful dilemma that confronts the obstetrician's consciousness of mortal possibilities. Forceps? Yes, it is always wise to have a handy forceps within reach for secondary service. An unlucky head in its rear advance may choke its outlet. But let the forceps be of facile short handle pattern. My own are and always have been the Davis only. But the naked pushing hand is the only implement that can discriminate in total darkness between head and feet, between knee and buttock of the defenseless infant whose calamitous origin and development became the consignees of double disaster. In the exigency, of course, the prompt action of courage is the more commendable function to be adopted by the attending physician—else it would be charged that he let the woman die without trying to save her. It is expected that the one last chance should at least be tested. When the issue is squarely before him he will not tediously dabble with alternatives until the excessive loss of blood has left the woman no fighting chance to survive the crucial ordeal. Relatively she may by skillful means, if timely, be rescued.

Professor Charles D. Meigs impressed on the hearts of his classes the apt illustration that it is the last half pint of blood lost that causes death in emergencies of hemorrhage. How many times it was my luck to hear him exclaim: "Young gentlemen, in your future ministry of practice always remember that the blood of the body is the life of the body! Don't allow the blood to run to excessive waste, if you would not allow your patient to die!" One other priceless admonition repeatedly voiced by Professor Meigs, in cases of danger of exhaustion by concealed post-partum hemorrhage, because of flacid condition of uterus after delivery, has re-echoed in my ears for over forty-six years: "Turn out the clot!" Then in his soft impressive tone he would elucidate like this: "Enter the uterus with your hand deep enough, and with your finger break up and remove or turn out the accumulating coagula of concealed hemorrhage, which there keep open by dilatation the orifices of the flooding bloodvessels, thereby preventing the proper and necessary contraction of the uterus for the suppression of the hemorrhage! Turn out the clot—if necessary again and again—with one hand, while with the other hand you make gentle pressure over the relaxed womb and knead it to a state of responsive contraction through the abdominal wall. Administer ergot to promote tonic contractility. For their styptic influence give powders composed of five to ten grains of astringent sulphate of alumina spiced with a few grains of grated nutmeg at reasonable intervals. If the patient is in danger of faint, remove pillow and bolster from beneath her head to make her body horizontal and thus assist her weakened heart-power. Elevate the foot of the bed with blocks or books beneath the posts, that her brain may have the advantages of gravity added. Place a folded towel compress over the womb, and apply a supporting bandage around the relaxed abdomen to relieve its

sense of sickening goneness. Stay with the patient till you see that she is safely past her danger!" Such as these, and many other important injunctions by this great teacher have helped to carry me successfully through many flooding emergencies.

In certain extreme cases of post-partum flooding, also in cases of excessive hemorrhage in miscarriages, in cases of profuse loss attending the expulsion by the womb of the fleshy-like mass known as misconception or "mole," again in dangerous profusion of flooding that overtakes some women near the onset of their menopause, I have stood on guard at their bedside for hours applying to the abdomen the tonic blood-restraining chill of folded towels successively wrung out of basins of cold water, to reduce the tendency to bleeding in utero. For the same purpose, especially in plethoric women, I have steadfastly repeated the introduction of suitable pieces of ice per vaginam to the os uteri, and held them there with the tip of my chilled finger till the ice melted—when another piece was introduced. "If I die," murmured one of my most valued patrons in a flooding emergency, while her anxious husband was standing near, "if I die, I know that I have a good doctor who does everything that could be done to help me." The tender recall of this midnight scene somehow blurs my eyes while I write of it after the interval of twenty years. She came through safely, and yet abides with her family.

With excessive loss of blood there is usually experienced a craving sense of thirst. With the exception of allowing occasional bits of ice in the mouth, supplemented from time to time with a sip of good wine or whiskey to relieve the sense of unequivocal prostration, and reasoning that a low spring does not largely overflow, I have made a defensive precaution to have my patient consent to "live dry," until safe, by avoiding all flushing of the blood vessels by free indulgence in drinks of all kinds, including the craved-for water, tea or milk, also the drinking of soups or broths or other foods in fluid forms until the hemorrhagic tendency is safely under control. Soft egg, bread and butter with raw fruit, or relished with raw tomato, something sustaining that does not flush the circulation, is the safer course. I have always shrunk from the results of prolonged swoon in severe flooding. I know that I would prefer letting the woman's head down over the side of her bed, or to the seat of a low chair, or even to the floor, rather than allow her to lie in deep faint because of excessive loss of blood from which her heart-action might never rally with her head elevated. A saving service of a remnant of circulation may hold in reserve an only chance for nature to recover her normal conditions a little later along the way of opportunity. This seeming digression is not without its appropriate importance. It hinges to the great fundamental truism—the blood of the body is the life of the body.

Professor Charles D. Meigs, as I now comprehend his rare personality and tact, was one of nature's most gifted and most magnanimous instructors. He gathered experience and its philosophy from every available source as the wise industrious bee gathers honey from every opening flower. He responded to the calls of rich and poor alike. His feet pressed the bare floor of the work-day woman with the same grace as when they sunk into the velvet plush carpet of the most affluent lady's boudoir. When he had passed his fiftieth year in his loved

profession it became my privilege in turn to go to his spacious office for examination in his branch for my doctorate. He received me as a true disciple of his cultured doctrines. He was then finishing the manuscript for his later volume: "Letters to My Class on Diseases of Women." Upon a large table in the middle of the room lay a mass of written sheets of paper, each about twelve by eighteen inches in size. On the flat at the left lay a page partly written over in unusually large chirography—obviously a relief for his aging eyesight. It must have been between nine and ten o'clock at night in the month of March. While he engaged me in conversation on obstetrical points, the door bell rang and a woman was admitted. She approached humbly, was very plainly dressed, and evidently a poor woman. The Professor rose at once and approached her as graciously as would be apparent at the reception of a titled personage. She said she had called to see if he would attend her in her approaching confinement? "Certainly, madam," he replied, "I will do so. When is it that you expect?" She told him, and then reached to him a gold piece as retainer in advance. "I thank you, madam, for your thoughtfulness, but you will keep this money for me till the service has been rendered. I do not wish it now." Grateful for his kindly confidence, she withdrew—and my examination was immediately resumed. After delivery Professor Meigs candidly advocated the values of a neatly applied bandage to the woman, for a few days or a week, to afford temporary relief to the overstrained, distended abdominal tissues caused by carrying the increasing weight of the developing child. I have never omitted the comfort of a bandage after the sudden collapse of the distended abdomen by delivery. Invariably I apply this bandage myself, enclosing the hips in its grasp—always leaving it for the woman to decide exactly what degree of supporting pressure is most agreeable to her before each safety pin is inserted. When this procedure is smoothly adjusted, while my hands are yet upon her bandage, it is my habit to ask the patient if it seems satisfactory. The response is usually like this: "Oh, that holds me together so nicely now—it rests me!" Again: Professor Meigs believed in the appropriateness of ligating the cord before cutting. I have never omitted to tie the cord twice before severing the child from the placenta. This is not done hurriedly, but after the respiration of the babe has become established if alive. The placenta may even then be yet enclosed by the womb—it may possibly not be yet detached from the uterine blood vessels. No tidiness nor increased safety to the woman can result from a drainage of blood through the cut end of an unligated cord while waiting for the terminal contractions to shove the placenta from its circulating attachment with the mother.

It has also been my custom to "dress the navel" of the new-born babe myself. This was the advice of Professor Meigs to all students. I have followed the neat and careful method that he took pains to describe. I never cut a round hole in the linen patch, but incise a straight short opening through which the stump of the cord is snugly drawn to its base in a close-fitting way, and the raw end then wrapped dexterously so that no part of the cord can get in contact with the infant's skin. If the cord is tardy in drying away, or remains moist, I dust it well with subnitrate of bismuth and place beneath the previous dressing, yet intact, a fresh one to protect the tender skin from contact with the

first wrapping. I take no stock in the recent new-fangled fad of a few doctors who crave for cheap novelty by omitting the bandage for the mother and snobbishly ignore the tying of the cord of the infant. Such affectation is no part of prudent obstetrics, has no merit in itself, savors of barbarian neglect, should meet with universal disapprobation in civil procedure. In three instances, I have found the infant severely bleeding at the cord because my first ligature in each case had not girdled deep enough into the thickened structures. Furthermore, when a woman has come through the the travail of a considerable labor, she feels the need of supporting comfort to wearied abdomen as an after-toilet until nature has rested from the strain of pregnant conditions.

It is not my aim here to attempt to cite my numerous cases of dangerous flooding, though they troop forward in recollection in appalling array. In all instances of such misfortunes I have resorted with apparent benefit to ergot to promote the grasp of contraction and the seal of condensation of the uterine tissues. Besides the plain wine, or in later years the fluid extract of ergot, there is one combination that has long been my favorite formula, namely:

Ammonio ferric alum, forty grains.

Fluid extract of ergot, four fluid drams.

Tincture of Cardamon seeds, four fluid drams.

Cinnamon water, one fluid ounce.

Mix and direct: Shake bottle before each dose. Dose, one-half to one teaspoonful in wineglass of cold water every one to four hours according to emergency. I also never hesitate to administer a three or four grain capsule of quinine at intervals of a few hours as a nerve and muscle bracer till the drift of uterine relaxation has been arrested. Reverting to the ammonio ferric combination with ergot above, I employ it also to control "spitting of blood"—hemorrhage—from the lungs.

In his lectures Professor Meigs so graphically expounded the grave misfortunes of placenta previa cases, that the lesson did not readily vanish from my mind. Year by year I was anticipating my liability to be confronted by the difficult situation. In time I began to believe that I would be exempt from the experience altogether. Having read the statistics of a prominent authority in charge of a lying-in hospital, who met one case of placenta previa in about a thousand cases of labor, I knew that my record of labors was yet far short of a thousand. After passing my twelfth year in practice, and had removed to Philadelphia, I was rung up late one winter night by a strange young man. He informed me that a young woman was ill at a certain number on a certain street, and that she was having a great deal of pain. At once I buckled to the call. In the second story of the house indicated I found a young woman of comely face and form—with this young man her sole attendant. Though surprised, I repressed my ignorance of the mysteries that pebble the undercurrents of life. It turned out that the reason why my call was relatively secret was because this young man and young woman, though not husband and wife, were keeping room there together in connubial relations. The woman's menses had been absent about seven months. She was pregnant of course. A "show" was becoming aggressive. Recurrent pains had set in—with recurrent loss of blood after each contraction. Doubtless

hoping for the occurrence of a quiet miscarriage, had it not been for the untoward complication of bleeding, possibly I, a stranger, would not have been called. As it was the man looked very anxious. I dare say he had another home. The woman realized that her strength was markedly on the wane. Her troubled mind may have been reverting to a mother in some country location. Within a half-hour, and with careful examinations, I discerned that the os had softened for my diagnosing finger to enter. Her pains were accomplishing nothing advantageous to the woman except to punctuate the defiant rush of blood. Extending my examination, I decided that we three were then and there up against the dangers of placenta previa. In the simplest words available I explained the situation to both, and suggested that another doctor be called. To this they both demurred—perhaps for diplomatic interests.

Enhanced dread of exposure added fortitude to the unhappy couple, and I chivalrously consented to force my way through or past the placenta until I might find the child's feet and draw it into the world. I believed this procedure would practically detach the placental adhesions and make a general delivery practicable. Mainly ignorant of the real extent of the danger, they told me to go ahead and do the best that I could. I will never describe the tormina; but I pushed in past the moderate sized placenta as one would determinedly displace an offending intruder, the pressure of my hand holding back the bleeding till I found the feet, and gradually drew away the immature child, following which I continued until the womb was cleared and active hemorrhage controlled. The heroic, probably desperate little woman recovered in reasonable time. When asked, after the delivery, what should be done with the little body? I replied: "Give it civil burial." At my next visit the body was gone. Doubtless the material of that delivery was bundled into a newspaper or crammed into an empty cigar box and dropped into a sewer where no one was looking. My success in this case rather reduced my apprehensions concerning placenta previa. But there came a "next."

About eighteen months after this satisfactory exploit I was called by a well-to-do saloon keeper to visit his wife. On my arrival, I was very cordially met by another doctor already there, who announced himself as the family physician. Said he was glad that I lived so near and could help him in a troublesome case. The wife of the proprietor was in labor and was flooding. On entering her room I noted that the patient was of fair complexion, not above medium height, of good figure, plump in flesh, a rather pleasant-looking woman. Her doctor in charge desired that I examine his patient at once. The child was at full term and the woman was having energetic pains, but constantly losing blood per vaginam. From the vagina I could touch nothing solid. One always experiences a twinge of gladness if he finds the hardness of a head presenting. Through a small opening of the os I could perceive an elastic substance only. It did not impress me as being the sack of waters. The abdomen was not unduly large. The bulk of the child could be outlined from the outside. After a few pains with free discharge of blood I told the doctor that I suspected he had on hand a case of placenta previa.

He moderately resisted my idea of the case, said he hoped I was mistaken, thought it was only an incidental bleeding which would abate as labor progressed, and the confinement would doubtless end all right. As she was his patient, I could not at that time boldly oppose his position—was willing to yield to courtesy and to his responsibility. It was about the noon hour. The doctor wished me to remain in charge while he could hasten home several squares away for lunch. As he passed out I noted that he went by way of the husband in the barroom, and that they had a mutual glass together. Left as companion with the pains and the bleeding, I think that was the longest hour I had ever passed with a case of obstetrics. When the doctor returned, he came in by way of the barroom again, and was distinctly flushed with drink. I then advised that we should not allow the woman to be losing blood without any obstruction—might try packing the upper vagina with tampons charged with powdered alum—that possibly such tampon might hold a clot inside the os and also assist dilatation. He readily consented, but wished me to apply the tampon, which I did, and then excused myself a half hour to obtain some food.

When I returned he said that tampon had not done much good—that I should put in another. He went through set form—held her hands at times—urged her to bear down with the pains—but the bleeding did not abate. I saw that the woman was fast losing ground. I seemed to see the approaching shadow of death bleaching her features. When I drew her doctor's attention to this flag of failure he took excuse to revisit the barroom. The afternoon was short, and early gaslighting came. Earnestly I appealed to the doctor that his expectation and the procedure could effect nothing hopeful. That the presence of placenta previa had doubtless resisted success. That he would have to assume the risk of compelled delivery by displacing the placenta and extracting the child, or in my opinion his patient would be fatally exhausted with her child unborn. He told me to go down and tell the husband my view—which I did, and gave little hope. The husband sent me back to tell his own doctor to come to him. The doctor soon returned. I said: "You have prepared the husband for all seriousness?" He replied: "Yes, but you will have to do the work. I know that I can't undertake it—you must go on!"

The poor woman was so near her end I made no delay. Tampon was cleared away. The os was softer. My hand was in those days long and slender. I forced as gently as I could the passage along one side of the womb till the large placenta gave way. Then I pressed for the child's feet, grasped them and drew laboriously on the large child till it was brought completely into the world. The woman through this severe ordeal evinced consciousness of the struggle. Within five minutes after it had ended, she ceased to breathe. Hurriedly I severed the dead body of the large child from the dead body of the mother—all else remained inside. The family doctor then sent me down to the barroom to break the tragic intelligence to the husband. He was frantic, naturally, in vociferous demonstrations—for he had also braced freely with spirits under the strain of his suspense. "Oh, God!"

he exclaimed, in his finish of emotion, "Oh, God! How can I do without her now! And *she* was the best worker in the world!"

It was the man's way of contributing a compliment to the worth of a good wife. I spoke to a lady friend the next day of the sad and terrible experience that I had been drawn into in this regrettable case.

"Doctor, do you say that this man is a German?" she asked.

"Yes, and a fine-looking German at that—and this loss so unexpected!"

"Then don't you worry, doctor. If he's a German he will survive his loss."

In less than a year he consoled himself. He took a new wife—not a handsomer, but an industrious and younger woman.

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RECENT ADVANCES IN THE USE OF ANTITOXINS.

BY WILLIAM WORMLY, M.D.

IN the August issue of this journal I took up the treatment of tuberculosis as seen by recent observers. I would like now to broaden the field and take up the various antitoxins.

Firstly, as to our greatest success as yet in antitoxin-treatment, that of diphtheria, it is well to remember that refinements are constantly being made, thus:

Uffenheimer has found a toxin in the blood of diphtheria at an early stage. He has been able to differentiate the disease, by injection of animals, before the bacteriologic test was positive. He injected only a small amount of the toxin, and accepted as a positive response the palpable infiltration of the subcutaneous cellular tissue without waiting for more prominent signs; the animals being killed later the signs were so pronounced then as to be unmistakable. Out of 14 cases of diphtheria he found the toxin present in 6, dubious in 4, absent in 4. The repeated finding of the toxin in some of the cases requires the necessity for prompt neutralization with antitoxin, repeating the injections of antitoxin again and again to neutralize the toxin in the blood as it is formed and also to draw out from the tissues the toxin already in them and to render it harmless. Large amounts of the antitoxin are able to attract out of the tissues the toxin already settled in them, and to neutralize it. This is an important conclusion for treatment.

The Commissioner of Health of the City of Chicago gives the most comprehensive statistics recently, with regard to the mortality from diphtheria before and after the introduction of the antitoxin treatment. The first case was treated with antitoxin on October 5, 1895; statistics are given for the ten years, 1886 to 1895, and 1896 to 1905. In the first period 10,019 deaths were reported from diphtheria, an average rate of 9.87 per 10,000 of population. During the second period there were 6,446 deaths reported from diphtheria, an average rate of 3.94 per 10,000 of population. Had the previous average death rate from diphtheria obtained during the second period of ten years there would have been 9,701 more deaths from diphtheria in the city of Chicago than actually occurred. The Commissioner shows that this is really an understatement of the case, for prior to 1895 more than 90 (92.4) per cent. of the deaths attributed to croup were, in fact, caused by diphtheria, as is shown

by the figures of the last ten years, during which the difference between croup and diphtheria has been bacteriologically demonstrated. During the last ten years of more accurate diagnosis the death rate from croup has been 0.30 per 10,000. During the preceding ten years, when diphtheria was so frequently called "croup" the croup rate was 4.12, or 13.7 times greater. The point is that, notwithstanding 92.4 per cent. of the deaths formerly attributed to "croup" have been properly charged to diphtheria during the last ten years, the diphtheria death rate has been decreased by 60 per cent. and the rate from both diphtheria and croup combined has decreased 70.2 per cent., surely a brilliant showing.

McClintock and King have shown that antitoxins for diphtheria and tetanus may be given by mouth and absorbed in sufficient amount to show markedly antitoxic properties in the blood of the treated animal; they obtained this result by the use of certain drugs with the serum: on the one hand, drugs that inhibit digestion; on the other, those that promote absorption. What are the best drugs for this purpose, and in what quantities is still unknown. They also show that the toxins of diphtheria and tetanus are absorbed from the alimentary canal, provided digestion is inhibited. This may suggest a method for slow, gradual immunization of animals of men, and also suggests an explanation of many cases of toxemia, due to the absorption of putrefactive products when digestion is deranged. When antidiphtheria serum alone is given to guineapigs by the stomach, absorption does not take place with any uniformity.

In a recent editorial in the *Therapeutic Gazette* the importance of treating the pharynx and tonsils in the early stages of the acute infection is emphasized. The editor says:

"In the old days, before our knowledge of bacterial infection was as complete as it is at present, the fact that the tonsils were frequently found to be inflamed in cases of acute illness and rheumatic affections gave rise to the belief that the tonsillar state was the result rather than the cause of illness, and on this basis a very considerable number of practitioners were wont to administer the salicylates and quinine in full doses with the idea that the rheumatic poison, so-called, or malarial poison, was responsible for the local inflammation in these glands. Indeed, the salicylic acid treatment of tonsillitis still remains a popular method, and there is considerable evidence to show that it is quite useful, even if the original reason for its employment has been found to be incorrect.

"Recent investigations, combined with clinical studies, have proved again and again that the tonsils in the majority of instances act as an efficient barrier against the entrance of infecting micro-organisms into the general system, and the swelling of these glandular tissues after exposure to certain infections is undoubtedly the result of a battle royal between the resistance of the individual and the parasites which are attacking him. Frequently symptoms of general infection, as represented by chilliness, mild fever, backache, and general muscular soreness, will be found to be associated with the appearance upon the tonsils of follicular exudation and swelling in these parts; and again, it is interesting to note that for some reason, which is as yet unexplained, the salicylate of cinchonidine in particular serves to diminish these

disagreeable symptoms, particularly if it is combined with some more powerful salicylate, like salicylate of strontium, and if at the same time a gargle of peroxide of hydrogen in water is used for its local effect upon the septic condition of the pharynx and tonsillar tissues. Of course, in cases in which the general systemic infection has become marked, the local treatment cannot be expected to produce very material results, but in the early stages of those infections which take place through the tonsils local treatment is often exceedingly advantageous, not only when peroxide is used, but when other antiseptics are employed. In this connection the well-known use of frequent small doses of biniodide of mercury is to be borne in mind.

"Goodale pays particular attention to the presence of tuberculosis of the tonsils and of infectious arthritis arising through the entrance of pathogenic organisms by this pathway. In some instances it is possible that the symptoms arise from the absorption of toxic material rather than by the actual entrance of the germs themselves. Goodale asserts that the examination of a large number of cases of infectious arthritis with regard to the condition of the tonsils has demonstrated the existence of pathological alterations in the tonsils characterized in general by retention of lacunar detritus, with or without hypertrophy of the organ. He even goes so far as to suggest that where inspection fails to reveal deep-seated collections of detritus it is wise in some cases of arthritis to extirpate the tonsils in order to remove a source, or nest, of infection. Of course, such advice only holds good in those cases in which as the result of disease the tonsil has become distinctly pathological in its condition. To remove tonsils which are to a large extent healthy would, it seems to us, simply remove one of the barriers introduced by nature in the pathway of infection, but chronic cheesy tonsils should always be regarded as areas from which invading micro-organism may descend upon the general system of the patient. It follows, therefore, that even if the patient suffers from no discomfort in his tonsils, these tissues should be carefully treated, and they may be removed, particularly if they are the only infecting source which can be discovered."

The importance of mouth disinfection in the prophylaxis and treatment of pneumonia is also emphasized by Wadsworth. He found that pneumococci as compared with other pathogenic bacteria, are extremely susceptible to plasmolytic action of saline and alkaline solutions and also to the antiseptics in general varies greatly, and especially under varying conditions. In both media the pneumococci are readily destroyed; in exudates the albuminous material and detritus interfere with the action of many antiseptics; in sputum, disinfection by harmless solutions is extremely difficult. Of all the commercial solutions studied—listrine, borine, borolyptol, glycothymoline, odol and Seiler's solution—none proved efficient when tested on pneumococci under the conditions most favorable for their actions. Formalin, lysol and hydrogen peroxid also failed to act on the pneumococcus in exudates; alcohol alone, of all the antiseptics studied, proved efficient when tested on the pneumococci under all the conditions of the experiments. Observations on the diffusion of the different solutions with the secretions of the mouth under different conditions showed that the presence of salts in isotonic quantities and alkalies was of a positive val-

ue. The rapid diffusion obtained with alcoholic solutions is greatly accelerated by the addition of glycerin. The results of these experiments suggested the use of hot solutions; cleansing the mouth with simple isotonic salt solution removes a certain amount of secretion and with it some of the infectious material, but does not destroy the bacteria. With the alcohol wash many of the bacteria are destroyed, the contaminated secretions are more rapidly removed and at the same time disinfected, and, finally, the natural resources of the tissues are more safely and efficiently aided in the elimination of the infectious material. Alcohol solutions containing glycerin and salts in bland quantities are in every particular more efficient than any of the washes hitherto recommended for mouth cleansing or disinfection; 30 per cent. of alcohol being the strongest that can be comfortably and habitually used in the mouth and the weakest that will give reliable disinfection. Wadsworth recommends the following solutions:

Sodium chlorid	gr. xl
Sodium bicarbonate	gr. xx.
Glycerin	
Water (dist), aa	f3iss
Alcohol	f3v
Spirits of chloroform	f3ii
Oil of wintergreen	oxx

Dilute with water in equal parts.

In hospital practice the solution is so made that the addition of water in equal parts gives the strength desired. As the flavoring of spirits of chloroform and oil of wintergreen lose their strength after keeping a few weeks, guard against this by the substitution of other flavoring agents. Hence, owing to the sweet taste and the evaporation of the chloroform and oil of wintergreen this solution has not proved so satisfactory in private practice as those containing other flavoring agents. Although it was found that the solution may be varied to suit the taste of the patient by the use of different flavoring agents, the following formula has given Wadsworth the best results:

Sodium chlorid (C. P.)	5ss
Sodium bicarbonate (C. P.)	gr. x
Water (dist.)	f3ii
Glycerin	f3i
Alcohol	f3v
Thymol	
Menthyl, aa	gr. i
Oil of wintergreen	gtt. iii
Oil of cinnamon	gtt. ii
Oil of eucalyptus	gtt. v
Tincture of cudbear	f3iss
Tincture of rhatany	f3ss

M. Sig.: Dilute with equal parts of water.

To prepare these solutions the salts should be dissolved in the water before adding the alcohol, but even when carefully made up a cloudiness or a precipitate may appear, especially in those containing the tincture of rhatany. Adding two or three of the flavoring oils a less pronounced taste is obtained than when only one is added.

The question of carcinoma looms large in the question of infection and antitoxin. Why is auto-inoculation of cancer so rare in new localities in cancerous persons? Stricker found on experiment that while it was easy to implant a cancer in a healthy mouse, it was impossible to implant one in a mouse already the subject of a sim-

ilar tumor. This is not due to an antitoxin of any sort, as the protection ceases the instant the tumor is removed—that is, too soon for an antitoxin to disappear from the blood. Two or more tumors of the same sort may, however, be implanted at the same time, and all grow. Partial removal of an existing tumor does not remove the protection. It is also noteworthy that this protection ceases in the immediate vicinity of the tumor, and thus does not prevent its growth. The increased liability to implantation after removal of the entire tumor explains the frequency of carcinosis following radical operations, and emphasizes the care which we must take not to let the tumor come in contact with other parts during its removal, and especially, the danger of causing general carcinosis of the peritoneum in removing abdominal cancers.

On the basis of experimental work, Fisher found that the growth of carcinomata into the connective tissues was due to the presence in the latter of a chemotactic substance which exerted an attraction on the epithelial cells. By injecting various substances into the tissue below the epidermis he caused this to extend downward, and found that many irritants had such an effect. This is not due to the irritation or to inflammation of the connective tissue, as some of the strongest irritants do not have any such effect. Olive oil injected immediately under the skin causes a thickening of this, but no growth resembling carcinoma. When, however, a solution of Soudan III. or Scarlet R. in olive oil is injected under the skin, a growth of the epithelium results, resembling squamous epithelioma in all respects, even to the formation of pearly bodies. The growth continues as long as there is any oil left in the tissues, but no tumor has been produced which continued to grow after the coloring matter has disappeared, nor has a tumor been produced elsewhere than in the skin. The author decides that carcinoma develops from a misplaced bit of epithelial tissue, attracted to growth by special chemotactic agents, which he calls "attraxines."

The peritoneum shows greater resistance to infection than the pleura. Noetzel has shown why this fact is true. Using rabbits he found that if the bacteria were simply injected through the uninjured chest wall—that is, if there was no pneumothorax—there was no pleurisy, but if a large opening was made in the wall so that pneumothorax resulted, or if air was injected with the bacteria purulent pleurisy always followed. This difference is due to lessened resistance of the pleura caused by the abnormal conditions, perhaps to interference with the lymph circulation. Pneumothorax without infection caused no disturbance. The animals without pneumothorax showed often, suppuration of the puncture, but never pleurisy, showing that the resistance of the pleura is naturally greater than that of the tissues of the chest wall. Another point was the influence of drainage as compared to closing the pleural cavity. He found that all animals with drainage died more rapidly than those without. It is true of men that they seem better after empyema operations if the wound is closed at once, and they do better if the pleura is closed, even if it has to be opened again. The bacteria appear in the blood within five minutes of the time they are injected into the pleural cavity, so their destruction is not due to absorption but to effusion of lymph, which has strong bactericidal powers. In all operations in which an infected pleura is opened, the lung should be sewed to

the chest wall and the wound closed, as this gives the system the best chance to get rid of the pneumothorax, the worst complication of pleural infection.

While so little has been done in America with "typhoid vaccine," yet in England and South Africa it has been used extensively, thus Birt recommends that 0.02 c. c. or 10,000,000 typhoid bacilli, should be the dose employed for therapeutic inoculation, the amount being gauged in each case so as to produce as few constitutional and local symptoms as possible. The blood changes which arise after inoculations should be studied by means of opsonic index determination, if possible; but by keeping the daily dose below the limit at which a reaction begins to appear no evil will result from a lack of knowledge of the actual blood condition. The site of the injection should vary; no part being twice inoculated. Early treatment is insisted on before gross lesions have set in. On this same subject Harrison found that the phagocytes are inactive toward typhoid bacilli, except in the presence of serum, and that normal blood depends for its phagocytic activity toward typhoid bacilli chiefly on an opsonin which differs from the opsonins for staphylococcus in being thermostable. He thinks that in immune blood the phagocytosis of the typhoid bacillus is chiefly encouraged by a thermostable substance which acts not as an opsonin, but probably by stimulating the white cells.

A curious phase is suggested as the result of an investigation of the action of cold tea on the typhoid bacillus, McNaught found that after four hours' contact the organism diminished greatly in numbers, and that after 20 hours it could be recovered from cold tea. The tea was prepared by pouring about one liter of boiling water on three heaped-up teaspoonfuls of tea. The tea was allowed to infuse for 10 minutes. McNaught suggests that cold tea may be used as a substitute for water in soldiers' water bottles.

Friedenthal believes that too much is being taken for granted in regard to the connection between spirochetes and syphilis. The silver stained spirochetes are closely simulated by silver stained scrap of elastic fibres, twisted into spirals by the contracting influence of alcohol, as also by coils of unmyelinated nerve tissue. He gives an illustration of deceptive spiral bodies in the form of spiral twists in protoplasm without parasites.

In closing I will quote the treatment of postoperative fistula by vaccines according to Wright's principle. Weinstein has been treating at Laudau's clinic a number of cases of fistula after laparotomies by applying Wright's method of vaccine production with the patient's own individual bacteria from the fistula. In the first three cases the infection was found to be the work of streptococci and in the fourth of streptococci plus the colon bacillus. The operation had been done on account of tuberculous lesions in the last three patients. The first two patients are entirely healed; the third is nearly healed, but the fecal fistula in the fourth case still persists unhealed, owing to constantly renewed infection. His findings confirm those of Wright.

Acute infectious jaundice, or Weil's disease, can, in the opinion of R. M. Thornburgh (*J. A. M. A.*, Aug. 3, '07), be acquired by handling frozen meat. Decomposition is not a necessary etiological factor. The pathological anatomy is not conclusive as to etiology or cause of death. In a severe case treatment is of no avail.

NUTRITION THE AIM AND END OF ALL ORGANIC PHENOMENA.

BY F. B. BRUBAKER, M.D.

PART II.

THE second step in the phenomena of nutrition is absorption. This in vegetable life is accomplished by the root hairs which take up saline matters and gases in solution. Soils are not only acted on by the solvent power of water, but many soils possess the remarkable property of removing saline matters from aqueous solutions. Sachs has shown that root hair evolve small amounts of acid which exert a distinctly corrosive effect upon certain mineral matters with which they come in contact. Hence there is a continual unlocking of the nutritive materials fastened in the soil, the release being at the very points where the root hairs are present to absorb them.

No distinct vessels are set apart for the function of absorption in the invertebrata, and it does not exist as an entirely separate function, but is either fused with the function of digestion or circulation. In the lower mollusca, Echinodermata, etc., the digested food is absorbed by the walls of the alimentary canal. In the higher Mollusca and Arthropoda the digested food or nutritive fluids are absorbed by the blood vessels in the walls of the alimentary canal. In both cases the function of absorption and digestion are not completely differentiated from each other. But the function of absorption in the vertebrata is carried on by a distinct set of vessels. In the higher animals absorption takes place partly in the stomach and partly in the intestines. The mucous membrane of the stomach and intestine contains an abundant supply of capillaries, the walls of these vessels, being only one cell thick, consequently the soluble peptones and sugar will diffuse readily into their interiors. Every animal membrane will absorb certain fluids with greater or less facility; thus, most of them will absorb pure water more abundantly than a solution of sodium or potassium chloride, or a solution of sugar more readily than one of gum, and the same liquid will be absorbed more readily by one membrane, and less so by others. Thus every membrane has a special power of absorption for certain fluids, which it will take up in greater or smaller quantity, according to their nature and composition. In all cases, however, there is a natural limit to this quantity beyond which absorption will not continue.

The third step in the process of nutrition is circulation, whereby the elaborated food particles having been absorbed are carried to each individual cell of the organism to be nourished. *This is accomplished throughout all of organic life by the circulation of WATER, and water is a constituent of all active cells.* The protoplasmic body of the cell possesses a marked affinity for it and up to a given point can abstract it from the ordinary surroundings, but under certain conditions releases it again. If a water plant in full activity is removed from water and exposed to the air, it speedily loses by evaporation a considerable part of its constituent water and shows the effect of this loss by a collapsing of its cell-walls and by a withering of all its parts, but if only a small portion of the plant is lifted above the surface of the water, the loss which takes place will be partially supplied by transfer through the cells remaining submerged. Comparison of the structure of a water plant with that of an ordinary plant adapted to growth in the air shows that the surface of the latter is such as to prevent very rapid evaporation, and also that the loss caused by the evapo-

ration can be made good if the lower part of the plant remains in contact with water; in other words, the plant has a surface which protects it against too great loss of water and is provided with a system by which the needed supply of water can be replenished. But it is not alone by evaporation from the surface that water is consumed by the plant for, wherever growth goes on, or work is done, water is consumed, and a fresh supply is required. *The transfer of water through organic tissue is therefore a general one.* The cell wall which separates the cavity of one cell from that of its neighbor is a permeable membrane. In most cellular plants and in masses of cellular tissue all the cell-walls have substantially the same capacity for transfer of water, but in all plants which possess a fibro-vascular system the transfer takes place chiefly by means of the lignified cell walls and even in cellular plants like mosses it is in those cells which are elongated and otherwise differentiated to form an imperfectly developed framework that the rapid transfer is made.

In animals of the simplest structure all the fluids of the economy resemble one another. In the Rhizopoda the only structures which may be said to have a circulatory function are the contractile vacuoles, the spaces are filled with a clear fluid and exhibit fairly regular rhythmic expansion and contraction. During the systoles radiating canals or vessels extend from these vacuoles, these widen as the vacuoles lessen in diameter. Presently the vacuole begins to expand whilst the radiating canals become narrower in diameter and ultimately disappear. The contractile vacuole performs more than one function. In the Infusoria contractile vacuoles are present and there is also a curious movement of the outer layer of the sarcoderm in company with the food vacuoles. In the Coelenterata the nutritive fluids is not contained in any vessels but is free in the somatic cavity or enterocoele this fluid is moved by the contractions of the body and generally by cilia developed on the endodermal lining of the enterocoele. In the Coelenterata there are no vessels and no special pumping apparatus, for the whole body is concerned in the performance of this function.

The fourth step in the process of nutrition is respiration. Respiration in vegetal structure is performed chiefly by the leaves but sometimes by the root, and consists in the absorption of oxygen and the giving off of carbonic acid. The organs (using the term in its widest sense) of respiration differ considerably in different animals, but they have all the same physiological functions to perform, namely, *that of supplying oxygen to the blood and tissues.* The lower forms of the vegetable kingdom respire directly by changes between the general surface of the body and the medium in which they live, but in the higher forms respiration is a two-fold process and consists of internal respiration or the interchanges between the gases of the blood and the tissues and external respiration or the interchanges between the gases of the blood and the gases in the air cells of the lungs. These interchanges, however, as in the invertebrata, are not always confined to the lungs, thus there is a true cutaneous respiration in the skin, an intestinal respiration in the intestine, and most probably interchanges of a like nature take place in other organs, for it may be remarked that many organs of the invertebrata contain various pigments which have a respiratory function. In the lowest forms no special mechanism is necessary for facilitating the gaseous interchange for they absorb fluids containing oxygen

in solution. In higher forms canals along which the air passes seem to be necessary, and in still higher forms respiration is performed by the movement of the branchiæ or by tracheæ and lungs.

The fifth step in the process of nutrition is assimilation, or the taking from the nutritive stream by each individual cell of oxygen and food principles necessary to the continued existence of each which once within the cell undergo complex chemical changes as yet little understood. The term assimilation as generally viewed means the conversion by the plant through the agency of chlorophyll of certain inorganic matters into organic substance; however, assimilation has a wider significance, viz., the conversion into utilizable substance of all matters whatsoever brought into the organism. A tissue may be said to deserve the term living only as long as it undergoes antagonistic chemical changes. The tendency to destructive oxidation or disintegration is intimately connected with the functional activity of the living texture and increases with this activity. The reintegration or constructive process requires the presence of suitable materials with which the texture may combine in order to make up for the loss. Thus living tissues are ever on the point of destruction which can only be warded off by the timely reconstruction of their chemical ingredients by suitable fresh material. This reconstruction by means of fresh matter from without is assimilation and one of the direct results of this process is secretion.

The sixth and last step in the phenomena of nutrition is excretion. This in the plant may be pointed to in respiration. All living organisms disassimilate incessantly. The excretory organs of animals being never closed, for they always pour externally the humour which they filter. This humour is a dead product, the residuum of nutrition whose expulsion is necessary to preserve life.

The theory of organic evolution is essentially a theory of the phenomena of nutrition, for the slight advantages gained whereby nature selects the fittest are nutritional. By added nutrition of an organ or part, organic nature takes a step forward, by its slight subtraction she takes a step backwards. Indeed, nature seeks to raise us higher by the operation of her allwise nutritive law. The inevitable cause of organic increase or growth is of course inherent in the germ but use and disuse of an organ or part play a very important role in the future history of any organism and rudimentary organs plainly declare their origin and meaning in various ways.

All things philosophic are circular, and the phenomena of nutrition is not stranger to the law, and finds issue in the inorganic. To the science of molecular motion all things material resolve themselves, and their harmonic play is life itself. From the simplicity of the inorganic we rise to the complexity of the organic, not suddenly, but by well ordered steps. The matter of the organic body is that of inorganic nature. There is no substance in organic tissues which is not primarily derived from the rocks, the water, and the air. Every portion of every organic body may be reduced to purely inorganic matter and a perfect reversal of this process of reduction would carry us from the inorganic to the organic, therefore we may reduce the phenomena of both to the operation of forces the same in kind but differently

compounded, nor is the conclusion at all astonishing when we remember the persistence of force and motion and the mutual dependence of all cosmic phenomena.

There are no characters in the chemical composition of the textures of organic beings which can be said to be absolutely distinctive or to separate them from inorganic matter. Their chemical construction frequently exhibits certain peculiarities not seen in dead matter which may be taken as characteristic, but living textures only differ in the general plan of arrangement and composition from that most commonly met with in the construction of inorganic materials.

In the first place the great majority of the chemical elements which we know of take no share in the formation of living creatures and are never found to enter into their composition. Practically only fifteen of some seventy or eighty elements known to chemists take part in making up the tissues of animals and the majority of these are only present in very small quantity and with no great constancy. On the other hand there are four elements, viz., carbon, oxygen, hydrogen, and nitrogen which are found with such great regularity and in so great quantity that they make up ninety-seven per cent. of the animal frame, and the great constancy with which the first of these elements occur must be regarded as a most important character of organic tissues.

In the first period of the world, that is, the earliest of which we have any memorials, the vegetation was characterized by a predominance of cryptogamic plants while the animals which coexisted were almost entirely confined to Zoophytes, Testacea, and a few fish. Plants of a less simple structure, Coniferæ and Cycadææ flourished largely in the next epoch, when oviparous reptiles began also to abound. Lastly, the terrestrial flora became more diversified and most perfect when the highest orders of animals, the mammalia, and birds were called into existence.

From simplicity to complexity, from the inorganic to the organic, from the lower chemical constituent to the higher, we evolve the organism. From complexity to simplicity, from the organic to the inorganic, from the higher chemical constituent to the lower we dissolve the organism and thus we complete the first circle. But we must not fall into the fatal error of believing that the circular appertains exclusively to finished phenomena, for all things compensatory thereto are alike circular. Every point therefore becomes fixed position and may be a beginning or an ending or vice versa; therefore space itself, being eternal, is circular, for if otherwise conceived it must have beginning and ending.

The process of nutrition is the outer circle of all organic phenomena to which all natural forces where-soever found contribute.

It is circular because it takes issue in the inorganic and returns thereto.

I can think neither of simple nor complex phenomena whose ultimate aim and end is not nutritive. You will point me to the reproductive and I grant you it is not to be explained by the clash of molecules.

Nevertheless the nutritive is all we possess of organic phenomena being the aim and end thereof. Therefore it becomes the whole organic law. Within this nutritive circle we place man, the highest, or the

amoeba, the lowest, animal structure. We observe that each digests, absorbs, circulates, assimilates, excretes and secretes, and we find by closer examination that secretion is only another form of excretion, and that the secretion of glands becomes a first step in digestion and thus we complete a lesser circle, so that motility is nothing, neither is atrophy anything, nor hypertrophy, neither growth, but nutrition, which is all these, and disease is always a departure therefrom.

HEREDITARY POLYDACTYLISM IN CATS.

A. L. BENEDICT, A.M., M.D., BUFFALO.

THE scientific aspects of polydactylism have been so thoroughly discussed that they require no consideration here. This phenomenon seems to be comparatively common in cats and to be quite strongly hereditary. I recall two cat families of my personal acquaintance, separated too widely in time and space for any probable relationship, in which polydactylism occurred in several individuals and generations. These families or, at least, the polydactylism, has become extinct.

In October, 1904, while on a little archæologic exploration I accidentally encountered a third polydactylic cat family and was able to supplement the notes of the findings by similar but slightly less detailed observations and by genealogic relationships furnished by the owners.

First generation: Brindle gray and white female. Nothing definite known of antecedents nor of mates, except that this cat was bred by relatives of the owners who had never noticed any abnormality in their cats, excepting this one. This cat has thumbed (five-digitated) hind feet and double "thumbs" on fore feet (six digits with claws on each fore foot).

Second generation: First litter consisted of four kittens, all said to be normal except one female of peculiar black, white and tan coat. Each fore foot has a triple "thumb" and each hind foot a double "thumb" (seven digits with claws on each fore foot and six on each hind foot). Second litter also of four kittens, all said to be normal except one tortoise-shell and white male cat, that has double "thumbs" on every foot (six digits with claws on every foot). First litter dead or without offspring, except as below, so far as known. Second litter barely old enough for reproduction if living and no offspring as yet.

Third generation (through abnormal female cat of first litter of second generation): First litter of two kittens, one said to be normal, the other to have extra toes (exact number not known). Second litter of three kittens, one normal, one said to have extra toes, third examined with following results: Black and white kitten, whose father is said to be a normal black tom cat; left forefoot has double "thumb" (six digits with claws) and right fore foot has triple "thumb" (seven digits with claws). Hind feet have only four well developed toes with claws but each has a rudimentary "thumb" without claw. This kitten is only two or three weeks old, and it is possible that claws at present too small to be readily detected may appear later.

The incidence of polydactylism may be tabulated as follows:

First generation: One polydactylic female; nothing known as to antecedents and collaterals.

Second generation: One polydactylic male and one polydactylic female, each in a litter of four.

Third generation (through female of second generation): One polydactylic in litter of two; two polydactylics in litter of three.

In the summer of 1906, an ineffectual attempt was made to trace the family further. No breed of polydactylic cats had appeared in the neighborhood, although this lack of further heredity may have been due to drowning. So far as the limited numbers go, the small and diminishing litters seem to show a tendency toward extinction.

There is a general law in evolution that "sports" or abnormal individuals of either animal or vegetable kingdom are badly adapted to the struggle for existence and tend to disappear spontaneously. However, an important exception exists in the development of a new species which, in general seems to be due to the almost immediate fixation of a peculiar individual type that happens to conform to the demands of the environment. Hence, it is practically never that missing links are found—pardon the hibernicism—the transition period being so brief and so limited as to place that the mathematic chance of the preservation of fossil remains is almost infinitely small.

Generally speaking, the quinquepartite arrangement is fairly common in the vegetable kingdom and in the lower phyla of the animal kingdom, and rather the rule as regards the final divisions of the limbs of higher animals. The evolution of the equine animals is especially interesting in the allotment of digits to different genera and species.

The statement that abnormal development is unfavorable to the individual in the struggle for existence, requires qualification regarding polydactylism in cats. Such cats seem perfectly healthy and in spite of the clumsy appearance of the feet, the general opinion is that they are as agile and fleet as a normal cat and that they are exceptionally good hunters on account of their stronger and wider grip. Of course, we may appeal to the law of heredity of unit characteristics to explain the failure of development of a breed of polydactylic cats and still, as this phenomenon occurs not very rarely and does not seem in any way to interfere with the struggle for existence but rather the contrary, and as human interest in freaks would tend to preserve such animals, it seems rather strange that a polydactylic breed does not develop permanently.

The Maccabeans, a Jewish society of professional men in London whose custom it is to honor, from time to time, distinguished members, whether Jew or Gentile, recently dined a number of prominent physicians and surgeons. Dr. Bertram Abrahams, the chairman, in returning thanks for the toast, "The Medical Profession," spoke of the debt that the public owed to it. He observed that the profession of medicine does not offer such prizes as are open to a popular jockey or a music-hall artist. But the physician who does honest work is at least sure of a living. He lamented the fact, states the *Jour. A. M. A.*, that in England the members of the Jewish race seem to prefer the destructive professions of the army and the law to that of medicine. Conditions have then changed somewhat; for in other centuries there were many famous Jewish physicians. In mediæval times the profession was almost exclusively Jewish.

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TIME ALLOWANCE IN THE MEDICAL COURSE FOR COLLEGE GRADUATES.

AT the meeting of the Association of American Medical Colleges, in Pittsburg, March 19, 1906, this subject was discussed pro and contra. Dr. F. C. Waite of Western Reserve held that such subjects as osteology, elementary physiology, inorganic chemistry, bacteriologic technic, bacteriology of non-pathogenic organisms, and principle of embryology, aggregating 700 hours, could be taught equally as well in the college. Just how the hours are reckoned we do not know, but in general, it may be said that it has been found impracticable to make the net didactic session in any advanced school more than 35 weeks, and it seems to us that a requirement of more than 40 hours per week, is unhygienic and, indeed, economically wasteful, since it is better to allow reasonable leisure and time for preparation than to increase the number of hours of required attendance and necessarily abridge the amount of work that can be covered in each. This makes a maximum of 1,400 hours a week. If, as has been the custom at some colleges, credit of only one hour is given for two or three hours' laboratory work, daily, the number of hours' credit in a session will be reduced to about 1,000. Indeed, where the recitation plan is adopted, fifteen to twenty hours a week, or 525—800 a year, are standard.

On the other hand, Dr. Frederick S. Lee of Columbia and Dr. C. Judson Herrick of Denison, held that efficient instruction in medical subjects could not be given in a college.

We are inclined to believe that most medical teachers and examiners hold that credit should not be given in medical schools for college work.

But it seems to us that this objection is based on a failure to appreciate the gist of the whole matter. The college graduate should not be allowed to know

less about medical subjects simply because he is a college graduate, but the implication that this would be the case if he were allowed to graduate in medicine in three years instead of four is misleading. The object of a time requirement in medical study, or any other course, is to prevent the fictitious showing of examinations prepared for by the cramming method. Experience has shown that four years is required for the average student to perform the average amount of work now considered a prerequisite to the medical degree. As in college courses, we believe that a considerable minority of the students can do this amount of work in three years, pass the same examinations, attain at least the same average standing as determined by the marking system and really graduate with at least the same amount of medical knowledge and skill.

There are bargain hunters in education as in other things, but, as a rule, the student who is ambitious to shorten his course applies himself more closely and really does more thorough work than the average. In the old days of medical education, when there was an ungraded course of lectures, quizzes and clinics, and one year of study under a preceptor was credited on a standard requirement of three years, it was a matter of common observation that most of the honor men were two-year students, and many of them had had only a nominal and sometimes almost a fraudulent claim of a year's study under a preceptor. And these same two-year men have, as a rule, subsequently made their mark as practitioners.

It ought to be understood that the essential reason for allowing a college graduate to graduate in medicine at the end of three years is not because he has pursued medical studies in college, but because, on the average, he possesses a better, more thoroughly tested and higher-gear engine for covering a fixed educational distance than the boy fresh from the high school or the man whose brain has, for several years, not been kept up to the pressure necessary in formal scholastic work.

Granting that the college graduate entering a medical school has not pursued a single study directly bearing upon medicine, he has, on the average, a better trained mind and a habit of study which enables him to acquire technical information more rapidly than one without such training. He is also on the average more mature than the high school boy, and in a scholastic sense, more so than the man of equal age who has been reporting for a newspaper, teaching an elementary school, selling goods or who has been engaged in various other occupations, and certainly more so than the young man who has simply been enjoying a few hours of leisure.

In purely incidental ways the college graduate who has not pursued any study directly bearing on the med-

ical course, is at a distinct advantage over others. He has acquired a facility in note taking, he knows how to use a library, he can turn the leaves of a dictionary faster, he has a familiarity with Greek and Latin nomenclature, even if he has not pursued these subjects formally in college, which helps him to understand medical terminology, mathematic expression and computations, which are frequent in scientific medicine, are familiar to him; he probably has had one or more of the following subjects which help him directly in medical study: Chemic technic, rudiments of theoretic physics and chemistry; botany and zoology, which help in the study of *materia medica*, physiology and anatomy, and even in some recondite branches of bacteriology, serum therapy, diagnosis by inoculation, etc.; microscopic technic, bearing upon bacteriology, histology, pathology and practical diagnosis.

The ignorance of such a man and the ignorance of those with whom we have contrasted him, may appear to the medical teachers as identical. Really, they are very different. Both, for example, may be absolutely ignorant of the dose and therapeutic use, detection and toxicology of potassium iodid. But to the one it is a distinct concept, about which he has to learn only a few technical details and to which he has to apply general principles already familiar; to the other, every step has to be acquired.

It is not too much to assert that a man with a rudimentary, scientific knowledge of chemistry, microscopy, and physiology, can, in a week master the technic of blood examinations so far as such work is mastered by the average medical student and used by the average practitioner who considers himself modern in his methods. For a fairly well trained chemical student, even if he has had no course in physiologic or even organic chemistry, a two weeks' special course would enable him to do analyses of urine better than is actually required of the average graduate of any medical college in the land. A similar course would place him in the same advantageous position as regards urinary microscopy, provided that he has had a corresponding college course in microscopy.

Place before any student in medicine a lecture or ordinary lesson in practice, surgery, obstetrics, gynecology, pathology or any other subject with which he is unfamiliar. The main obstacle to his understanding of the subject is that he does not know the language of medicine. The student who has a fair knowledge of Latin and Greek, who has used dictionaries and cyclopædias considerably, who has a trained mind, and an extensive English vocabulary, will overcome this obstacle, not in three-quarters of the time required by one not thus prepared, but in about one-quarter.

There is also a very important utilitarian side to the

dispute as to time allowance. The vast majority of impartial thinkers, whatever their personal equipment has been, will concede that, generally speaking, the better general education a man has, the farther he will ultimately progress in any life work which involves scientific and abstruse thinking. In other words, the ideally prepared medical student is a college graduate. We cannot here occupy time in arguing for this statement, but it may not be out of place to point out that our contention is, in the main, borne out by actual statistics of competent and eminent medical men, although we would not for a moment claim that the mere lack of a college education prevents competent or even eminent achievement in medical work or that such an education can make a good brain out of a poor one. It needs no argument that, if the college graduate is given no credit for his four years of study beyond the present legal requirement, we shall have fewer men entering upon medical careers with a college education.

Some colleges, especially departments of universities, have already organized medical preparatory courses. We are inclined to believe that such courses should be held to a happy mean which, on the one hand, shall not be beyond the facilities of any properly equipped college, and, on the other hand, shall not call professional education a general scholastic training and give a bachelor's degree for what is essentially professional work.

In other words, the college student who anticipates a medical career should not be a first or second year medical student counted in the collegiate department, but should simply choose or have chosen for him, studies of a general educational nature, any one or all of which would be perfectly appropriate for a student who had no thought of becoming a physician, but which should, in each particular, fit him for the rapid acquirement of a medical education.

Such a group of studies should be about as follows: Latin and Greek, sufficient to give a familiarity with anatomic nomenclature and with the ordinary words from which our elaborate technical nomenclature is derived by simple combination, and such that the student would not be tempted to combine Greek and Latin elements in the same word, as has been so often done to the reproach of our standing as a learned profession.

German and French, because post graduate study in Europe and medical reading is facilitated by a knowledge of these languages.

Physics, one ordinary semester course being ample for application to medicine.

Chemistry, one semester each in inorganic, and organic rudiments and one each in qualitative and quantitative analysis.

Botany and zoology, one semester each, for reasons alluded to or obvious.

Physiology, one or two semesters.

Comparative anatomy, embryology, bacteriology, biology, including in various ways, the use of the microscope, one semester each.

The above would amount to about 21 semesters in single studies and, as about four studies could be carried on at once, would amount to about 2-3 of the entire college course.

We have not included anatomy, except as incidentally taught in connection with comparative anatomy, zoology, physiology and embryology. A preliminary summer course would place a student thus prepared on full equality with the ordinary medical student at the middle of his course, excepting in anatomy, *materia medica*, and such clinical and diactic work in the strictly practical medical studies as most underclassmen pick up. One year—not, of course, in the calendar sense, but properly distributed during the remainder of the course—would be an ample allowance for the technical deficiencies remaining.

ALCHEMY UP TO DATE.

CHEMISTRY has indeed made tremendous strides since John Dalton a century ago propounded or rather renewed the atomic theory, for the idea was not original with him. In the very beginning of the history of thought Democritus, the laughing philosopher, had set it forth. Dalton, however, was able to invest the theory with a scientific precision impossible in the days of his jocose predecessor.

We are all familiar with Dalton's thesis that the fundamental unit of matter is the atom, a particle essentially indivisible; that each atom has a certain weight; that in elements the atoms are all alike; that groups of atoms are molecules; that chemical compounds consist of combinations of these elements. Though the exact weight and size of atoms are unknown, estimates have been made. The smallest germ, which our present day, wonderfully perfected microscope can determine approximates 1-80,000 of an inch in diameter, packed sardine-like about 500 million million would occupy a cubic inch. But in a gas more than 150 million, million, million molecules are contained in a cubic inch, and the molecules of many gases are composed of a considerable number of atoms. Besides the molecules are comparatively very far apart in gas. "Probably the smallest germ contains a thousand million atoms at least." These are the computations of Prof. John Waddell, upon whose shoulders we beg leave to place the responsibility for their accuracy; we are ourselves not specialists to the degree that we can vouch for them.

Dalton was forty years ago followed by Crooks, who

is really the progenitor of the chemistry of the present day, in which Ramsay, Roentgen, Lodge, Remsen and others are doing amazing work. In the passage of electricity through Crooks' tubes certain phenomena appear, which he believed could only be maintained on the assumption of particles much smaller than atoms being shot out from the cathode—the negative pole.

Roentgen next startled us by the discovery of the photographic effect of electric discharge in exhausted bulbs. Small particles (corpuscles or electrons) are shot from the cathode in straight lines; these particles are only about 1-1,000th the weight of the hydrogen atom, and each one has a charge of negative electricity as is proved by the fact that they are attracted toward a positively electrified body and repelled by the negatively electrified body. Their velocity is between 20,000 and 60,000 miles a second. Next after Crooks came Becquerel, who, ten years ago, discovered that uranium compounds produce some of the effects hitherto obtained only by electric discharge through exhausted gases. Shortly afterward Mme. Curie separated radium from pitchblende, the most important ore of radium. Then Rutherford and others showed that two sets of particles are sent out from radium compounds; one kind (the alpha rays) having a charge of positive electricity, the other (the beta rays) being similar to the corpuscles or electrons which constitute the cathode rays. The alpha rays are attracted by a negatively electrified body; the beta or cathode rays by a positively electrified body. It is the beta rays which are emitted from the decomposing radium in inconceivable numbers; each grain of radium shoots out 200 million electrons or corpuscles or beta rays each second with a velocity nearly equal to that of light. Yet so small are these electrons that if they were the only particles emitted it would take millions of years for the radium to be dissipated.

We come thus to the theory of matter now held that all atoms are made up of electrons, each of which is charged with a definite quantity of negative electricity; but the atom itself is not charged because the negative electricity is counterbalanced by an equivalent positive. It is then inferred that one atom (of what we have been in the habit of calling an element, or one of some seventy substances having individual characteristics) differs only from another of a different element in the number of its electrons, and possibly also in their arrangement, so that one atom may change to another by losing a certain number of electrons. Wherefore, we may conceive that an iron atom may change to a gold atom. So that perhaps the *Lancet* was quite right in its recently expressed opinion that the transmutation of metals, the dream of the mediæval philosopher, may soon become a thing accomplished.

THE PHILIPPINES UP TO DATE.

THE Philippine Medical College at Manila, having an adequate faculty of American instructors, is to open its doors early in the coming September. The various chairs are being filled by the Bureau of Insular Affairs, which invites applications. For the enterprising medical scientist there will be much opportunity for special research work and for an exhaustive study of tropical diseases.

Such a medical school, modern in its equipment and tendencies, is a very real need in the Philippines. If these islands are to be developed the first consideration must lie with their sanitary condition and with the health of their inhabitants. Gorgas has demonstrated this in Panama and in our West Indies—that before we can civilize any region we must first put it in hygienic condition, especially with regard to infections. At present, states the *Evening Post*, the greatest obstacle which the Philippine Health Board has to meet is the lack of a sufficient number of competent physicians. There is at present but one to 18,000 inhabitants. In Manila the ratio is one to 977; but in the regions outside the city it is one to 50,000. In the province of Samar there is but one to 129,640. Other provinces are quite without physicians, except when constabulary surgeons or inspectors of the Board of Health are stationed in them. Excluding Manila the physicians average about one to each 430 square miles.

About half the infants, even in Manila, die within the first year; and in that capital itself 52 per cent. of the deaths occur without medical attendance. Despite these conditions it would seem to be almost as difficult for a physician to become established in the Philippines as in the United States, the law regulating medical practice being absurdly on a par with the high standards in the larger States of the Union.

The Philippine health authorities have long been discussing the question of establishing a medical school, but it was not until a year ago that an enabling act was passed, and efforts made to obtain a faculty and to provide the necessary facilities for such an institution. The founding of this school has been thus long postponed largely because of the insufficient number of educated Filipinos who were ambitious to enter the profession. By this time, however, some five hundred native young men and women will have received a public school education sufficient to qualify them to enter the freshman class at college, and enough native college graduates have indicated their intention to take a medical course to warrant the opening of the institution in the coming autumn. A preliminary course leading to medical instruction has already been established.

The founders of this school are determined to maintain from the first a high standard of instruction; they hope to interest physicians eminent in the various spe-

cialties to the extent that they will come to the islands and take places in the faculty and on the hospital staff. They believe that young men can well afford to begin their connection with the institution as clinical associates or assistant professors, with the prospect of full professorships in time. These teachers will be enabled also to have published the results of their scientific researches.

There is but one medical school in the Philippines to-day—the San Jose Medical College, a department of the Santo Tomas University. This institution was organized as a college in 1612, and was made a university before the close of that century; but its medical department was not organized until 1876. The course in medicine extends over seven years, and costs in all about five hundred pesos. In one respect it is certainly up-to-date. The published list of the faculty includes eighty-one names; and the active professors number about one-fourth that many.

SCIENTIFIC MEDICINES.

THE business of drug making is nowadays, to quite an unusual degree, being subjected to scrutiny and criticism. It is therefore but fair to consider the methods pursued by many if not most of the firms thus engaged—methods which result in the production of very useful and essential medicines. From such a consideration one must be impressed by the conscientious and exhaustive care which at every step attends the evolution of these curative agencies; and one must conclude that in quite no other way than by such intelligent and most honorable commercialism can many of these medicaments, by means of which much disease is combated and many premature deaths daily avoided, be manufactured. We may here get much light from a valuable paper by Prof. Robert K. Duncan on "The Making of Medicines," in the April *Harper's Magazine*, in which we learn that scientific firms send organized expeditions to Brazil, to Siberia, to "silken Samarcand," to whatever part of the globe any discovery in materia medica may be hoped for. These expeditions return, bearing both new and known medicines for the experimental and standardizing laboratories. Strophanthus, for example, is an arrow poison gleaned in the wilds of savage Africa, and when brought back to civilization it is standardized by determining that a dose of 0.0016 gram of normal power will kill a frog weighing from 15 to 17 grams; but such a frog lives with 0.0015 gram.

Digitalis is tested physiologically by being applied to an anaesthetized animal, whose heart is clamped in a manner to register the curve of its movement. Er-

got, when actively medicinal, will blacken the combs of roosters kept for the purpose. Cannabis Indica will normally react definitely, causing a lack of muscular control in a dog of a given weight.

Much has been and is being evolved from the glands of animals, "from the tar barrel," by chemical synthesis. "Literally every passing day sees the introduction of a synthetic remedy." Adrenalin, for instance, which has hitherto been derived commercially from the suprarenals of oxen, is now manufactured in the laboratory from chemicals. Many such products as acetanilid, phenacetin, and piperazine have gone through most exhaustive chemical tests and animal experimentation before they have been sent out to physicians for use in practice; and this procedure is constantly obtaining.

Toxins and antitoxins are being prepared by bacteriologists, who seem never to rest or to sleep. Germicides and antiseptics are accurately tested by measuring their effects on the bacillus *Pyocyaneus*, the most resistive of germs. Vials of dead sterilized typhoid bacilli in liquid suspension are prepared for the Widal test. In this department the Wasserman reagent for the detection of human blood stains is prepared from "humanized" rabbits. We note here but fragments of Prof. Duncan's paper; the reading of the whole would certainly be instructive to our colleagues, who would as certainly, in concluding it, be impressed with the fact that sweeping condemnation of all drug enterprises is unfair, that, on the contrary, many, perhaps most of them, are carrying on a truly beneficent work.

POPULAR MEDICAL FALLACIES.

IN a very suggestive paper recently contributed to the *American Magazine*, Dr. L. K. Hirshberg has set forth a number of medical fallacies which obtain among the laity, and some of which still dominate many professional minds. Our grandmothers believed in hot flaxseed poultices for boils, which certainly, in the light of modern bacteriology, were an ideal means for the propagation of fresh crops of Job's comforters. There are all sorts of "sovereign" remedies—liniments and oils wonderfully made and amazingly believed in, for the relief of aches and bruises. But "hot water, olive oil or Worcestershire sauce would do as well as any other preparation; it is the rubbing that heals, not the liniment. Porous plasters and other counter irritants are as a rule useless except for their mental effect. Nosebleeds are never to be stopped by pinching the patient's upper lip; this is an utterly illogical procedure. Besides, unless they are very profuse, they had best be left alone. This is sometimes nature's way of bleeding. Electric belts will not dissipate ghastly maladies. Such diseases as pneumonia, ty-

phoid and tuberculosis used to be drugged unmercifully; now we make the patient clean and comfortable to begin with, and get a much greater percentage of cures by means of a policy of masterly inactivity. Obesity is not caused by overmuch drinking of water nor cured by its abstention. Sleeping after meals is not unhealthful. Dyes in stockings are not poisonous. Ingesting lime water will not cure warts. It is the anopheles and not foul air which causes malaria; "but for these pests the neighborhood of swamps would be as healthful as the highest plateau." Air heavy with gases and odors of decay usually seems harmful because of the stench; but such is not the case, as workers in dissecting rooms and tanneries may testify.

Thus would Dr. Hirshberg correct a few popular medical fallacies, some of them shared by "irresponsible physicians." Here we think Dr. Hirshberg, though his paper is generally very wise, is a little hard on his colleagues. We feel ourselves to be not altogether free from responsibility; yet we cannot fully agree that "mustard footbaths, hot lemonade, hot scotch, whiskey, quinine and powders are all alike hopeless for colds." We persist in being old-fashioned enough to put a patient with a heavy chill to bed, give him a hot drink, Tully's or Dover's powder, and a purge; we do this in the confident expectation borne of experience that the next morning will find him a little weak, but otherwise normal. And we feel, moreover, that in such a case we have averted some such serious disease as pneumonia. As has been noted counterirritants are chiefly of psychic value; but we hope that Dr. Hirshberg is not so unwise as to underrate the value of psychism in therapeutics. Swamps, moreover, are swamps, and they can never be as healthful as high ground, if for no other reason than that animal refuse and excreter must reach low lands as inevitably as there is a law of specific gravity. Nor is air laden with gases and odors really harmless; has Dr. Hirshberg forgotten his dissecting room fever, or is he one of those very rare birds among medical students who did not suffer that way.

Mayor Edward R. Taylor, M.D.—This excellent physician and superb citizen was recently selected for the position of Mayor of San Francisco by the "graft prosecutors." It is accepted as a foregone conclusion that his administration will mark a clean sweep of all the municipal commissions and departments and put honest men in the places of the detestable Schmitz's henchmen. The unfortunate city by the Golden Gate has certainly found physicians indispensable during her recent history. How could she have done without her doctors who healed her sick stricken in the earthquake and the fire; men who labored without price, while the millions which were generously sent to her were appropriated by political thieves. And now she calls upon a medical man to set her miserably disordered house in order.

BIBLIOGRAPHICAL

Surgery: Its Principles and Practice. In five volumes. By 66 eminent surgeons. Edited by W. W. Keen, M.D., LL.D., Hon. F.R.C.S., Eng. and Edin., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume II. Octavo of 920 pages, with 572 text-illustrations and 9 colored plates. Philadelphia and London: W. B. Saunders Company, 1907. Per volume: Cloth, \$7.00 net; half morocco, \$8.00 net.

The second volume of this colossal work is a little delayed in its appearance, but its great value makes up for all delinquency in this regard.

The subjects treated are Diseases of the Bones, Fractures, Surgery of the Joints, Dislocations, Surgery of the Muscles, Tendons and Bursæ, Orthopedic Surgery, Surgery of the Lymphatic System, Surgery of the Skin, Pathology of the Chief Surgical Disorders of the Nervous System and its Importance in Clinical Diagnosis, The Surgery of the Nerves, Traumatic Neurasthenia, Traumatic Hysteria and Traumatic Insanity, Surgery Among the Insane, and the Surgery of Insanity, and Surgery of the Spine.

The text is classically written and most fully illustrated by authors, each of which is a specialist in the subject of which he treats, and the whole is under the editorship of the eminent surgeon, Professor W. W. Keen.

It would seem as if nothing more could be asked, and that a great deal could fairly be expected from such splendid talent.

The publisher has done his part, as usual, in his best art.

Our readers need not hesitate to order this great work.

Manual of the Diseases of the Eye.—For students and general practitioners. By Charles H. May, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, New York, 1890-1903, etc., etc. Fifth edition, revised with 362 original illustrations, including 22 plates, with 62 colored figures. New York: William Wood & Company, 1907. \$2.00.

This little volume has proved itself to be one of the most popular manuals for the student and the general practitioner that has been published. It contains just what is required and nothing more. It is important that such a book does not contain too much. It is just what is wanted for a hand book by the non-specialist.

Practical Observations Upon the Chemistry of Food and Dietetics.—Second revised and enlarged edition. By J. B. S. King, M.D. 147 pages. \$1.00. Postage, 5 cents. Philadelphia: Boericke & Tafel, 1907.

This little book will be found useful and instructive in the individualization of the diet, both in health and in disease. It is multum in parvo, and will be found sufficient for many purposes.

Manual of Diseases of the Ear, Nose and Throat.—By John Johnson Kyle, B.S., M.D., Professor of Clinical Otology, Rhinology and Laryngology in the Medical College of Indiana, etc., etc. Second edition, revised and enlarged with 169 illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. \$3.00.

This is the second edition of another of "The Leather Bound Series of Medical Manuals," so popular with this publisher.

The author may feel flattered by the reception his first edition received, and the present edition, by revision and enlargement, is much superior to that.

The book will be found excellent for its purpose.

A Manual of Surgery for Students and Physicians.—By Francis T. Stewart, M.D., Professor of Surgery Philadelphia Polyclinic; Associate in Surgery, Jefferson Medical College; Surgeon to the German-town Hospital, etc. With 504 illustrations, \$3.50. Philadelphia: P. Blakiston's Son & Co. 1907.

This book belongs to the well-known "Leather Bound Series of Medical Manuals," published by this house.

It is concise, practical, up-to-date, and there can be no better book for its purpose.

Morris. Human Anatomy. Fourth Edition.—A Complete, Systematic Treatise by English and American Authors. Edited by Henry Morris, M.A., M.B. (Lond.), President of the Royal College of Surgeons of England; Consulting Surgeon to Middlesex Hospital, London; Honorary Member of the Medical Society of the County of New York; formerly Chairman of the Court of Examiners of the Royal College of Surgeons; Examiner in Anatomy in the University of Durham, and Examiner in Surgery in the University of London; and J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy, University of Michigan; Member Association of American Anatomists; Member of Advisory Board, Wistar Institute of Anatomy, etc. Fourth Edition, Rewritten, Revised and Enlarged. With 1,025 illustrations, of which 317 are in colors. Complete in one volume. Cloth, \$6.00; sheep or half morocco, \$7.00.

As we stated in a recent review, this standard work is published in a single volume, and also in five parts, for the convenience of students.

The text, the illustrations—in fact, the whole get up, is of the very first order, and purely in the interest of the undergraduate, having been arranged by the most eminent and experienced teachers in this department.

The work cannot be commended too highly.

Practical Fever Nursing. By Edward C. Register, M.D., Professor of the Practice of Medicine in the North Carolina Medical College; Chief Physician to St. Peter's Hospital; Editor of the *Charlotte Medical Journal*. Illustrated; 352 pages; octavo; price, \$2.50. Philadelphia and London: W. B. Saunders Co., 1907.

This volume from the pen of a competent practical clinical teacher, is one of the best we have seen for its purpose. It is really a working text-book and completely covers its field. It gives in plain language just what the nurse should know of disease and of its treatment, in order that she may anticipate all that is expected of her by the attending physician.

This book should be the nurse's constant companion when in service.

Diseases of the Intestines and Peritoneum. By Prof. Dr. Hermann Nothnagel, Late Professor of Special Pathology and Therapy, University of Vienna. Edited, with additions by H. D. Rolliston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital and to the Victoria Hospital for Children, London; sometime Fellow of St. John's College, Cambridge. Second edition, thoroughly revised. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D., Professor of

Clinical Medicine in the University of Pennsylvania. Octavo, 1059 pages. Cloth, \$5.00; sheep, \$6.50. Philadelphia and London: W. B. Saunders Company, 1907.

The excellence of this series of monographs issued under the editorship of the eminent Professor Nothnagel has been recognized by all students of medicine who have been able to read them.

The text has been justly denominated a lasting memorial of the distinguished author whose death we have unfortunately to deplore.

The second edition has been brought fully up to date, and the articles thoroughly adapted to the American or English reader.

The prominent specialists who were invited to cooperate in this work have shown the greatest interest in its proper doing.

A very considerable number of additions have been necessary for the purpose of improving the text.

The names of the editors alone suffice to assure the profession that in the additions there will be preserved the same high standard of excellence that has been so conspicuous a feature in the original articles, and the translation is vouched for by Prof. Alfred Stengel, which is sufficient.

No library can be considered complete without a set of these valuable monographs.

CORRESPONDENCE

SPECIFIC MEDICATION—TURPENTINE.

Editor of the MEDICAL TIMES:

Those who are new to the study of specific medication are inclined to think that those who have studied it have studied only rare and unusual remedies. On the contrary we have endeavored first of all to determine every possible specific influence of the commoner and better known remedies.

It will be a matter of surprise to those who have not used turpentine specifically to know that there is hardly a remedy in our entire list that can be relied upon more positively for its specific action than this very common drug, which is seldom used other than for its anthelmintic influence. Neither need it be given in unusual doses, or in any particular form, other than that the ordinary rectified oil of turpentine is the preparation that should be used. Of this from two to five drops every two or three hours is the proper dosage for an adult. This may be prepared, as is well known, in the form of an emulsion, or the oil may be dropped directly upon a square of loaf sugar and this may be dissolved slowly in the mouth, the patient swallowing the saturated saliva.

I have often combined, in intestinal troubles, in a two-ounce mixture, one or one-half drams of the oil with one-half dram of the oil of wintergreen, in order that the taste of the turpentine be somewhat disguised.

In the specific adaptation of this remedy, there are two clearly outlined conditions which are apparently diametrically the opposite of each other, in which the remedy will act specifically. The first of these is where there is an extensive secretion of mucus from any mucous membrane, especially if this membrane is relaxed and feeble or in any way out of tone. It may be given in perfect confidence. On the other hand, the remedy is just as specifically indicated in gastric

or gastro-intestinal inflammation, or in persistent fevers where there is a suppression of the secretions, either of the mucous membranes, of the gastric or intestinal glands, with or without tympanites. The conspicuous evidences of the need of this remedy are dry mouth, dry tongue, dark mucous membranes and a dark coat on the tongue. It is also indicated in persistent fevers when there is a dry and red tongue, glazed, denoting extreme gastric atony.

The third condition in which this remedy is specific, is that in which there is an exceeding distress, or dull, grinding pain across the abdomen. There is a sensation of hardness of the structures which seems to be more within the abdomen than in the walls. With this there is usually an inactivity of the entire glandular structure of the gastro-intestinal tract, with more or less constipation, sometimes extreme.

When administered for the intestinal disorders of childhood, this remedy is valuable in preventing the formation of lactic and butyric acids, thus avoiding the irritation which the presence of these acids cause.

The anthelmintic properties of this remedy have long been known. Of these properties I shall say but little. Its antiseptic powers are sufficient to enable it to be placed with that class of remedies which inhibits intestinal fermentation and destroys disease germs. Its volatility and penetrating powers stimulate absorption and cause the remedy to become diffused throughout the entire structure of the body in a very short time, and this promotes the use of the remedy in distressing parasitic disorders and conditions so induced.

Another very happy influence of this remedy is in that form of bronchitis in which the bronchial secretions are very deficient. In this case there is a dry, bronchial cough, greatly suppressed general secretion, and constant irritation in the chest. If this condition exhibits itself when there has been pneumonia, the remedy not only overcomes the bronchial symptoms, but it is of material benefit in overcoming any hepatization that may be present, and is also of service in clearing out the bronchioles.

In a case of this kind the remedy exercises a general influence in soothing the irritation. It allays the cough, relieves the distressing soreness and materially promotes the cure. In the adaptation of the remedy to general conditions, we find in both acute and chronic bronchitis very often, an excessive discharge of mucus. The final results of restoration of the normal functions are accomplished here; the excessive secretion abates, and irritation and muscular soreness are relieved. I have given this remedy where the bronchorrhea was extreme and obtained satisfactory results from this remedy alone.

In an extreme case, where there was a regurgitation of a very large quantity of thin mucus from the stomach, so severe as to prevent the ingestion of food, and from which consequently, the exhaustion was extreme, I obtained immediate results from this remedy in four drop doses every two hours, taken on a square of loaf sugar. I have met only a single case of this kind that was as severe, or which immediately threatened the life of the patient as this did.

In protracted fevers, with a dry tongue, especially if the tongue is dark red, where the temperature is persistently high and the pulse feeble and rapid, where the urine is scanty and dark, or where there is

ulceration of the intestinal glands, or suppression of the gastro-intestinal secretions, especially if tympanites be present, this remedy in five drop doses every two or three hours is directly indicated. At the same time, it may be applied in the form of stupes externally.

If the distension from the tympanites is extreme, inducing pain, turpentine from ten to thirty drops may be introduced into the bowels by a high enema. This will produce an immediate discharge of the gas and give permanent relief.

I have found the condition described as a dull, grinding pain across the abdomen, present under many circumstances; but whatever the cause, this remedy has always relieved it for me. It have found it with farmers who were careless of their habits and unclean. I have found it also in the most fastidious. Again, it is a very distinctive symptom of lead poisoning, and in such a case, this remedy has a widely beneficial influence.

This condition may be found more or less conspicuous in other acute inflammations, in peritonitis or appendicitis. It will be thus seen that in the line of its specific action, this remedy has a wide influence. It is also beneficial in certain cases of croup, for which a few years ago, it was used in preference to other remedies.

In diphtheria or in any form of inflammation of the throat in which there is an exudate, or in which the exudate may spread and cover the fauces or extend upward into the postnasal passages, this remedy should be inhaled, a few drops of the oil from the surface of boiling water. I usually combine it in this case with oil of eucalyptus. It has been given for its specific indications which were found present in a number of cases which were subsequently proved to be caused by trichina spiralis and has proved curative of the entire condition.

I would say of this as I do of all remedies—prescribe specifically; look for its indications which are given as specific indications in the correct diagnosis of the case, and if found, administer this remedy with all the positiveness of any specific remedy.

FINLEY ELLINGWOOD, M.D.

100 State Street, Chicago.

The Green Curse, as absinthe has been well termed, is now consumed in this country to the extent that it has attracted the attention of our Department of Agriculture, states *Harper's Weekly*, and an investigation is being ordered to determine to what extent it is being manufactured here. It is becoming recognized as being almost as fatal as cocaine in its blasting effects upon mind and body. Strangely enough it owes its present popularity largely to a song from a popular opera. The catchy air has served to familiarize it. The wormwood, which grows in abundance throughout our Eastern States yields an oil which is the essential ingredient of the liquor. To what extent the finer grade of oil, such as is required for absinthe, is being manufactured is not known. To manufacture wormwood oil for lotions, liniments, and cattle remedies, the seed may be sown broadcast, the plants cut, the roots, bark, twigs and leaves sent to the distillery, where the mass undergoes a process similar to the distillation of whisky. This oil is very valuable, and the European market has heretofore taken all that America could supply.

RETROSPECTIVE

ANÆMIA AND ITS TREATMENT.

As ordinarily considered, anæmia is essentially a deficiency of the blood hæmoglobin. This deficiency may be mainly cellular, or, as in chlorosis, mainly in the hæmoglobin content of the cell. Usually it is both. Most authorities agree that there may also be a condition in which the hæmoglobin index is greater than normal, that is to say, the average red cell contains more hæmoglobin than normal so that the hæmoglobin percentage of the blood is, relatively, higher than the proportion of red cells. The evidence of this condition is, however, not so great as is commonly asserted. The majority of reported cases rest on clinical investigations which are unsatisfactory. While we may feel confident of the approximate accuracy of the count or even measure of red cells, the hæmoglobin estimates are based on color tests which have an almost inevitable error of 10 per cent., and this error may be greatly increased in the very cases in which accurate readings are most needed. Thus, while individual red cells apparently contain more hæmoglobin than normal, as judged by their size and staining, such a conclusion is merely a conjecture. So, too, though an increased hæmoglobin index is occasionally demonstrable, it is doubtful whether the red cells, estimated by bulk, are richer than they should be in hæmoglobin, while there is an aggregate anæmia.

It is also doubtful whether there is ever an anæmia which is purely one of numbers, the individual average cell holding more than its complement of hæmoglobin, or, on the other hand, an anæmia in which the blood, not concentrated by lack of water, contains the normal number of red cells with a concomitant, appreciable diminution of the proportionate amount of hæmoglobin.

Conversely, a true plethora is exceedingly difficult to demonstrate. Undoubtedly some individuals have more blood than others, even proportionately to the body weight and standardizing them so as to allow for an equal amount of fat and bone. Mere inspissation of blood does not, of course, constitute a plethora. Neither is an individual greater development of the vascular system a true plethora. In all cases, the vascular system is able to hold, when relaxed, more blood than there is in the entire body. For example, by tying the portal trunk, practically all of the blood may be massed in the tributary veins and capillaries, so that the animal really bleeds to death into its own vessels. So, too, after death, capillary attraction empties the arteries, whose very name is due to this fact, the ancients believing them to be air tubes. Thus, we can scarcely conceive of a plethora due to an abnormal fullness of the vascular system.

A true plethora must signify one of two things: a disproportionate richness in red cells or an average increased richness of the cell, in hæmoglobin. We must also postulate, on the one hand, that the blood is not merely concentrated by withdrawal of serum or its water, and, on the other, that the individual average richness in hæmoglobin is not due merely to an average increase in bulk of the cell. The former is of comparatively frequent occurrence and often must be considered in blood counts much better than the state of the patient warrants. Whether the latter condition oc-

curs, is extremely doubtful and even individual cells that appear abnormally large may be merely pressed out more than others. Still, in some bloods, the occurrence of true megalocytes is indubitable. The positive demonstration of plethora, in either of the two senses stated, is well-nigh impossible.

Anæmias, clinically and also theoretically, may be divided into primary, in which there is a genuine disturbance of hæmatopoiesis, and secondary, in which the lack of cells or hæmoglobin is due to obvious failure of nutrition or to toxæmia, causing destruction of the cells and abstraction of hæmoglobin, but in which the blood-making organs are capable of restoring the blood to normal if the underlying condition is removed. Secondary anæmias are many times more frequent than primary.

The classification of these anæmias is complicated and based on imperfect understanding of pathogenesis and physiology, so that we shall omit it.

Both for practical and theoretical study, we would urge the more general use of the hæmatocrit or centrifuge, or any substitute method which may be devised to estimate the true bulk of the red cells. While it is the fashion to scorn the hæmatocrit, it is obvious that the bulk rather than the number of these carriers of oxygen is the physiologically important factor and that the hæmoglobin content of the average cell should be considered both in connection with numbers and bulk.

The ordinary treatment of anæmia by iron is rational only if the anæmia is essentially a starvation in this particular and if the iron, as administered, is assimilable. That even inorganic iron is absorbable is easily demonstrable by staining the duodenum with ammonium sulphid or ferrocyanides. The brownish-black or blue color is seen macroscopically and also in microscopic sections. Whether the iron is actually assimilated is another question, but experiments in which the only source of iron was the artificially administered, inorganic preparation, seem to show that true assimilation may occur. There is also clinical evidence that some cases of anæmia are cured by such administration.

Still, there are many other cases, even when hæmatopoiesis is apparently not organically at fault, in which the long-continued administration of inorganic iron produces no improvement whatever. In the majority of cases of anæmia, there is no difficulty in administering in ordinary foods, for instance meat, an abundance of iron. Indeed, there are hardly any cases in which there is a literal inability to ingest iron in organic combination to the extent of several times the daily, normal demand for ten centigrams. The only rational excuse for inorganic administration in such cases is the rather doubtful claim that inorganic iron is necessary to combine with sulphids in the bowel and thus, vicariously, to spare the iron of the blood.

Some cases of secondary anæmia are due to inadequate diet, as one of milk and cereals. Generally speaking, vegetarians are liable to a mild degree of anæmia, even in the best state of health attainable. Still spinach and other vegetables or chalybeate waters may prevent such a development. If the anæmia is apparently purely a matter of starvation of a special kind, the indication is, obviously, rather dietetic than medicinal.

In other cases there is a frank intestinal toxæmia.

Here, the indication is rather to stop intestinal putrefaction than to deluge the alimentary canal with artificially administered iron. We, personally, are inclined to believe that the principal value of arsenic in anæmia is to counteract such a toxæmia by its antiseptic action in the bowel. Even here there are preferable ways of reducing intestinal putrefaction, even confining ourselves to the selection of drugs.

In other cases, the hæmolytic action of tape worms or the combined hæmolytic and actual hæmorrhagic effect of other parasites, notably, the hook-worm, is the basis of the anæmia and in such cases the obvious indication is to get rid of the parasites.

In other cases, the toxæmia is due mainly to the kidneys. In such cases, we still use iron, in the form of Basham's mixture, but rather with the hope of exerting an astringent action on the kidney than as a blood-food. Whether, however, we can really accomplish the desired effect is decidedly problematic. At any rate, personally we are sceptic as to the practical results of such treatment, even when it seems expedient.

Some have declared that the administration of iron is only the A B C of therapeutics of anæmia and that the great point is to administer alkalies to counteract a lessened alkalinity of the blood. We believe that it is now generally admitted that the blood in life never becomes actually acid, unless in a recondite sense. But, if the administration of iron is only the A B C of treatment, that of alkalies is no more than the D E F, and must certainly fail if we have not happened upon the true condition.

In many cases, the anæmia is due to an exogenic toxæmia, as of syphilis, malaria, tuberculosis, rheumatism, etc. Here, the relief of the anæmia depends upon the treatment, more or less specific and more or less hopeful, of the respective infection.

On superficial consideration, we should expect anæmia to result from achylia gastrica, and there has been an attempt to connect pernicious anæmia with this condition. Unfortunately, or fortunately, clinical experience does not support this view, although in individual cases, there is such an association. Mature reflection and experience show that not only the assimilation of iron but of food generally, may be very satisfactory, even if the stomach is excluded physiologically or anatomically from digestion. Of course, if there is an achylia associated with anæmia, the indication is to relieve the former condition—if we can—but we certainly cannot do so if the achylia is absolute and not due to a functional disturbance or remediable catarrh. In these cases, we must devote our attention to the intestinal digestion.

Splenic and marrow extracts have been especially advocated in the treatment of primary anæmias. Unfortunately, we know very little of the intimate physiology of hæmatopoiesis. Certainly, the problem is not the comparatively simple one of supplying a secretion, as can be done with some degree of success with regard to deficient hydrochloric acid secretion or thyroid deficiency.

Lucatello, in 1900, advocated the practical application of the theory that anæmia is due to a hæmolytic action and he claimed success from animal serum obtained by injection of the animals with anæmic human blood. Engel (*Zeit. für Klin. Med.*, '04-'05) corroborated this theory by the report of a case of

grave anæmia which had resisted other forms of treatment and in which he restored the blood to normal by the following means: Ten c. c. of the patient's blood was withdrawn and injected into the peritoneum of a rabbit. Five such doses were given. The rabbit serum was then injected into the patient, and this process was repeated. Four injections were given in two months, when the blood was practically restored to normal and remained so after a year. The joint administration, on one occasion, of normal human serum, produced unfavorable results and was not repeated.

Unfortunately the deduction from this case is not so plain as might appear, since pernicious anæmia is notoriously subject to spontaneous remissions or even apparent cure, with subsequent relapse, after a considerable interval. Still, in properly selected cases, in which simpler indications do not exist, this method is worth trying.

Dangerous trades are considered by a writer in the *New York Sun*, who makes a number of pregnant observations. The "bends" is a malady which annually destroys the lives of probably 500 men in Europe and America. In building tunnels and excavating for piers men must enter caissons in which the air, instead of being at its ordinary pressure of 15 pounds to the square inch is at 50 to 100 pounds. Few men can stand such pressure long; and those who can are apt to suffer alarming sequelæ. On returning to the open air their knees and ankles swell, they vomit, and have dreadful headaches; they may become comatose and die. These symptoms generally follow upon a too rapid change from the outer air to the caisson and *vice versa*. When they intervene after leaving the caisson the worker is sent back and the pressure is reduced very slowly. In Europe the tunnel and bridge builders maintain special chambers for this purpose, the result being a reduction of the mortality to 3 per cent.

In some occupations a cure is possible only when the patient will change his trade. Pneumonokoniosis is contracted by those who work in marble, in stone-cutters, knife-grinders, brass-workers, coal-miners who have to breathe the dust peculiar to their various occupations. Emphysema is common among players of wind instruments. Workers in chemicals are very prone to various lesions. Those who manufacture rubber are often badly injured by the vapors of sulphide of carbon, which cause headaches, a staggering gait and severe neuralgias, followed sometimes by delirium and mania. The vapors of aniline dyes, when inhaled, occasion vertigo and other distressing symptoms. The South Americans who strip cinchona bark and the whites in the United States who handle the bark oftentimes sustain the characteristic eruption when an overdose of quinine is taken internally.

Weaver's tonsillitis is met with frequently among cotton mill employees. It is due to minute fibres lodged in the tonsillar crypts. The irritation is chronic and opens the way for microbic invasion.

Tea tasters, though they almost never swallow the tea they taste, commonly suffer various functional derangements, such as gastric irritability; they have pale skins and buccal lesions. They are a dreadfully nervous lot and finally lose memory and give other evidences of a general breakdown. A month's complete

rest serves to effect a cure; but on returning to this odd occupation the characteristic symptoms are very likely to return.

The excessive use of one group of muscles leads to local paralysis. It was thought that the type-writing machine would make writer's cramp only an unpleasant memory. And so it has, but is has substituted the equally distressing type-writer's cramp. Similar neuroses afflict telegraphers, violinists, pianists, cigarette-makers, and milkmaids. Marine engineers, for instance, usually spend all their time, awake and asleep, within a few feet of their beloved engines. The constant vibrations overwork certain sets of muscles, especially those of the legs. Pain results, often exceedingly distressing. Workers in ship engine rooms also suffer from breathing hot, vitiated air and from constant stooping. Such men are also apt to suffer spasms, muscular and various, rigidity, neuralgias and hysterical symptoms. Special forms of palsy are suffered by toe dancers, barbers, gold-beaters, lapidaries, wood sawyers, drum players, clothing cutters and all other workers who must use to excess a particular group of muscles. The exhaustion which seizes the laryngeal muscles of singers, "spellbinders," lawyers and preachers is an allied ailment.

Men who handle hides, wool or cattle, may become infected with diseases peculiar to the lower animals, such as anthrax, glanders, and anthracosis.*

"A Chronic Typhoid Fever Producer" was the subject of an instructive address recently delivered by Dr. L. O. Soper before the Biological Society of Washington, and reported in *Science* (May 31, '07). Dr. Soper detailed an investigation, which covered several months, into the source of a household epidemic of typhoid fever occurring in Oyster Bay, N. Y., during the summer of 1906. Of eleven persons six developed positive cases between August 27 and September 3. Several suspected sources—water, milk, vegetables, fruits and soft clams—were excluded by careful study and examination. It was proved that the infection was not water borne, nor due to milk and food supplies. Typhoid has been unusual in this locality; and there were no cases immediately preceding or following those here stated. None of the patients had been absent for several weeks prior to the outbreak and they therefore had acquired it on the premises. The house and its surroundings were in an entirely hygienic condition. Dr. Soper inferred the occurrence of some unusual event prior to August 20 and found it in a change of cooks on August 4. The new cook's term of service with this particular family covered a period of three weeks before and three weeks after the outbreak. She would give no information tending to connect her with the cases; but an independent investigation furnished startling and significant data. Despite the fact that her record for nearly two of the past five years is yet unknown, twenty-six cases of typhoid fever, including one death, were associated with her service in seven families during this time. The cases were almost entirely among the servants and the initial case occurred soon after the arrival of the cook. She admitted having herself had a "mild attack." The evidence indicating this cook to be a competent cause of typhoid, the Health Department of New York City

* The practitioner should almost constantly have occasion to consult the excellent book entitled "Dangerous Trades."

took her into custody, and at the detention hospital a bacteriological examination was made. The urine was free of typhoid bacilli, but the stools showed great numbers every day for the several weeks of observation. The blood gave a positive Widal reaction. Thus a healthy and vigorous subject was shown to be a chronic typhoid-fever producer. As the organism is known to persist for years in the gall bladder, this is the presumed source of the infection. The removal of this appendage requires the subject's consent. Soper recalled the investigations by the aid of portable or "flying" laboratories made by Koch and others of typhoid outbreaks in western Germany. To these workers the dangers of bacillus carriers are well known. Stress must be made on the importance of contact in transmission and on the analogy in this respect between typhoid, diphtheria and tuberculosis. A careful campaign is necessary to discover bacillus carriers once they escape the physician's care. Except during epidemics, however, the vigorous prophylactic measures adopted in Germany are perhaps impracticable among us at this time. Dr. M. Rosenau, of Washington, in discussing Dr. Soper's paper, stated his belief that when large quantities of virulent cultures are ingested the disease is frequently induced within the usual period of incubation. Ordinarily, however, persons become infected with dilute cultures or attenuated bacteria which remain in the intestinal tract awaiting lowered resistance before the disease manifests itself. This lowered resistance is largely brought about by the enervating effects of the hot weather. This explains the seasonal prevalence of typhoid fever and why it is a summer disease in Washington and many other places. Mr. K. H. Kellerman declared that Dr. Soper's investigation has shown weighty reasons for the sterilization of sewage. Chemical sterilization is practicable at a low cost by nascent chlorine or one of the heavy metals; and should be resorted to when sewage is discharged into streams which in a short time are used as the sources of drinking water. Dr. J. Goldberger stated, with regard to the frequency of bacillus carriers that among 1,700 cases examined in German laboratory stations three per cent. were found to be chronic carriers. It was observed also that it is difficult to enforce sanitary precautions in cities and almost impossible in rural districts. "The farm is an important source of city typhoid, and the fly an important carrier on the farm." It was declared that ninety-nine per cent. of the houseflies in the city are bred in horse manure. Dr. Soper, in closing his memorable discussion, declared that hand infection is important. These members should receive more attention than they do; such would be the case if cooks could be selected only after careful assurance concerning their histories and personal habits. In general, scrupulous cleanliness is an important safeguard against typhoid.

Prof. Angelo Heilprin died recently in this city, although his home was in Philadelphia. He had been ill for two months with tropical fever. His whole life was one continual devotion to science. Having been interested in the northerly limitation of human habitation, he accompanied Peary in 1891, in order that he might study the nature of the Greenland icecap, its relation to the ice of the glacial epoch and the distribution of plants and animals. He took no notice of the popular desire to reach the North Pole and considered

only the scientific questions which might be solved. In his death, states the *New York Sun*, science lost an unselfish and heroic soul and a servant who did not spare himself. He never hesitated to take his life in his hands, "and yet so great was his enthusiasm in the cause of research that it may be doubted if he was fully aware of the risks he exposed himself to." He made two ascents of Mont Pelee when there was what he called a "wonderful exhibition of volcanic pyrotechnics," and on one of these occasions he dared to go on until he could look down into the crater's mouth and take notes of its phenomena. On the morning of the second ordeal two villages were destroyed by vomitings from the terrible mountain; yet Heilprin advanced under a constant fire of flying boulders which burst into fragments in their passage. His account of these experiences forms one of the most vivid and thrilling in the literature of science. He was never content to be a closet student. Various institutes recognized his valor and worth as a soldier of science, and in a comparatively short life of devotion to it he achieved many distinctions and won well merited honors. He was versatile, industrious, fearless and indefatigable.

A Franc for Every Sleeping Sickness Sufferer.—Philanthropy is a word oftentimes most grievously misused; but there is no doubt of its appropriateness when applied to a work which is being done by the Roman Catholic missionary station at Saint Trudon on the Congo. For three years this mission has been paying to the natives one franc for every sleeping sickness patient brought to it. These unfortunate people were being driven from the villages to perish in the forests, when humanity interposed to assuage their sufferings, even though their lives could not be saved. The Catholic fathers and sisters are still attending them in the hospital enclosure they have provided, states the *Sun*, "and every victim of the dread disease is made as comfortable as possible and receives a decent burial at the end. It would seem that in this Congo region the natives are so terror-stricken that upon the first indication of the disease they drive the sufferers away from the settlements. It is strange, indeed, how human conditions do not differ very radically in whatsoever portion of the globe they obtain. We might quite justly substitute for the sleeping sickness consumption, for the terror of the barbarous African phthisiophobia, for the Congo region pretty much any "civilized" community. With regard to the sleeping sickness, we are gratified to note that at the recent conference in London it was concluded that we now have some means at least of controlling it in the individual and of checking its spread. It seems, moreover, that we are on the road to other discoveries which may possibly be the means of exterminating this disease.

"Rabic Antitoxin."—Our lay namesake well observes that the old notion of administering to the patient, as the most effective remedy, a hair of the mad dog that bit him, was at least suggestive. The opsonic method prescribes the introduction of graded doses of various infective microbes into the blood to increase its resistive properties. Pasteur long ago rendered dogs immune to rabies by injections of the modified virus of that disease. Now the directors of the Pasteur Institute have reported a cure for hydrophobia by injecting into the human patient the blood of a sheep thus immunized. This new antitoxin is said to cure

the disease in its dangerous second stage—a thing perhaps never before heard of—for, generally speaking, antitoxins are effective only in the beginning of an infection. A quantity of the new anti-rabic serum is being shipped to this city from Paris.

A Piece of Glass Removed from the Pericardium.—The *J. A. M. A.* (July 27, '07) cites the case of a young man who was stabbed in the heart with a long, pointed piece of window glass. Hemopneumo-thorax threatening, a surgeon the next day found and successfully removed the pointed tip of the glass, which had broken off in the wound. It measured $1\frac{1}{2} \times \frac{3}{4}$ inches and was found in the pericardium, the tip implanted in the wall of the auricle, rising and falling with the latter. A week after the operation the patient was in good condition, with a pulse of 86, a normal temperature and a tranquil respiration. The wound was sutured without drainage.

What are Acid Fasts?—S. J. Maher answers this question in the *N. Y. Medical Record* (June 22, '07). The theory was formerly accepted that the only bacilli likely to be confounded with the tubercle bacillus were the leprosy and the smegma bacillus; and that the smegma bacillus was more readily, and the leprosy bacillus less readily, decolorized than the Koch germ. Nine years ago Petri and Rabinowitch, while searching for tubercle bacilli in Berlin butter and milk, discovered and isolated a bacillus which answered the staining requirements of tubercle bacilli, but which differed from the Koch germ in many cultural ways, and did not cause tuberculosis in injected guinea pigs. About the same time Möller, at Görbersdorf, discovered that a flask of bouillon into which he had put some green timothy grass from his garden, contained many bacilli which in shape, size and staining were like tubercle bacilli, but which on isolation seemed to have greatly different biological characteristics. These discoveries were quickly confirmed by other workers in various parts of the world, who contributed supplementary findings, and a whole literature on this important subject has since grown up. All these germs which, with the ordinary staining methods resemble the tubercle bacillus are now known as "acid fasts" or "saurefesten bacillen" or "bacilles acidoresistant." They have now been found in many places and under different conditions, such as acid fasts found in Nature, in butter, in man, and in beast as harmless and pathogenic acid fasts.

Some aspects of sterility in women are considered by A. T. Roginsky (*N. Y. Med. Rec.*, June 22, '07), who finds that in searching for the cause in any given case one must not only scan the whole range of diseases peculiar to women, but must also take into account the physical and social conditions of the individual. A detailed knowledge of the physiological and pathological processes that take place in the female genital tract, is very essential. Once healthy semen is deposited in the upper segment of the vagina and conception does not take place, clinically speaking, the woman is at fault. Sometimes the cause is very obscure; but aside from the many structural lesions that may exist, functional disturbance, no matter how mild, may be causative—especially when women suffer from a general muscular relaxation, are ill-nourished and highly nervous. In order that the male factor may reach its destination, two mechanical forces besides its own motor power are essential to compel the spermatozoon to travel toward

the uterine cavity. First the perineal body or pelvic floor, by the constant contraction and relaxation of its muscular structure, produces from below a wave in the direction of the cervix upon which the spermatozoa are carried upward. This perineal function is no doubt one of the most important factors in holding the uterus in its normal position. Again, the hollow uterus, constantly undergoing, as it does, some contractions, must "have some suction power which aids also the upward passage of the spermatozoon." In women who suffer from a general muscular relaxation these mechanical processes are greatly diminished, with the result that conception does not take place. Another untoward factor is that the wave produced by the uterine ciliated epithelium is outward, opposing the progress of the sperm.

Convulsions in Children.—The *J. A. M. A.* (July 27, '07) enumerates as causes: high temperature; intestinal colic; cerebral anemia from profound depression, due to profuse diarrhoea, inanition, etc.; reflex disturbances (painful eruption of teeth, adherent or elongated prepuce, pinworms or other intestinal parasites, foreign bodies in the ears or nose); injuries to the head; cerebral lesions caused by hemorrhages, as from whooping cough, etc.; epilepsy; tetanus; or nephritis. As to treatment: The child must invariably be stripped and all external reflexes must be sought; if any are found they must, if possible, be corrected. If the cause is high temperature due to the beginning of any disease this must be reduced by tepid sponging every two hours and the administration of one dose of antipyrin (one grain for every year of the child's age), and from one-half to two grains of calomel. An ice cap should be applied to the head for short periods, but not continuously. Where the disturbance is gastrointestinal castor oil had best be substituted for calomel. If the convulsions are due to depression the body should be surrounded by dry heat, and a few drops of brandy in water given every hour, and such warm nutriment as is possible. If there is much nervous excitation we give bromide of sodium (one grain for each year of the child's age) every two hours until there is sleep. Severe pain requires deodorized tincture of opium ($\frac{1}{2}$ drop for a child from 1 to 5 years) every hour until sleep occurs or the pain ceases. Repeated convulsions generally require chloroform inhalations, and if persistent, chloral hydrate (one grain for each year of the child's age) repeated hourly if needed, although the warm bath may be tried. The subsequent treatment depends on the cause of the trouble. The urine should be examined in every case as soon as it can be obtained.

The Pharmacopeial Preparations to be Kept on Hand by General Practitioners.—The *N. Y. Medical Journal* has presented to its readers (June 22 and 29, '07) a valuable series of its "prize essays" on this subject. Dr. G. A. Graham, of Kansas City, the first essayist, considers that in rural districts one should have both the newer drugs, which are indispensable, and also a full line of pharmacopeial preparations, so as to be able himself to compound prescriptions. In the city, however, where drug stores are available, so large a list is not essential; and under such circumstances the following preparations should be always at hand for emergency or office operative and other practice:

A package of 3,000 units of anti-diphtheritic serum, less than a year old, should be within reach day and

night. One's hypodermic case should contain in tablet form atropia, apomorphine (fresh, otherwise the tablet becomes green-colored), cocaine, morphine, pilocarpine and strychnine. He should add also spartein, nitroglycerin, hyoscine (or hyoscyamine) and digitalin and two pearls of amyl nitrate. The syringe and needles should be in perfect working order, to which end at least weekly inspection and cleansing are essential. A small vial of sterile water should, if possible be included.

The obstetrical bag should contain ether, chloroform, ergot, boric acid, Hg bichloride, liquor ferri subsulph, quinine, vaseline and liquid soap. For poisoning cases and emergencies: aqua ammonia fortior, chloral, mustard plasters, ferri hydroxidum cum magnesi oxido, linimentum calcis, olive oil, magnesia carbonat, croton oil, permanganate of potash, aromatic spirits of ammonia, wine of ipecac and sulphate of zinc. For office work: hydrogen dioxide, silver nitrate (fused and in various solutions), alcohol, balsam Peru, sulphate of copper, flexible collodion, katoplasm kaolin, adhesive plaster, glycerite of tannin, boroglyceride, calomel, protiodide of mercury, iodoform (or some such substitute as aristol), liquor antisepticus, liquor formaldehyde, methylene blue, oleum santali, cubebe, et copaibæ, acetate of lead, iodide of thymol, tincture of iodine, oxide of zinc and zinc sulphocarbolate (we should add chromic—or trichloroacetic—acid and argyrol. For urinalysis we should have hydrochloric, acetic, nitric, sulphuric and tartaric acids, Fehling's solution, sodii nitris, liquor sodii hydroxide and liquor potassæ hydroxide.

One's medicine case should contain some twenty remedies which might be useful when a drug store cannot be reached, as: Acetanilid, ammonii carbonas, antimony and potassium tartrate, bismuth subnitrate, cerium oxalate, codein, fluid extract of belladonna, of digitalis and of gelsemium, iodide of potash, compound jalap powder, tincture of ipecac and opium, potassium bromide, resina podophylli, the tinctures of aconite, and of veratrum viride, of opium (deodorized) and of opium (camphorated), sodium salicylate and phenol salicylate. Graham well observes that one gets the best results not by the indiscriminate use of many drugs, but by the proper and intelligent use of a few. To the drugs thus enumerated Dr. L. G. Ledische, of Cincinnati, the second essayist, makes the important additions of elaterium, castor oil, oil of turpentine, carbolic acid, whiskey, and the fluid extract of viburnum prunifolium.

The third essayist, Dr. A. W. Lamy, of Baltimore, adds adrenalin, oxalic acid, ethyl chloride, plaster of paris for dressings. ((The ordinary and familiar non-drug surgical and obstetrical necessities are not here set down.)

Dr. M. S. Simpson, of Middle Valley, N. Y., adds dilute phosphoric acid, ammonium benzoate, chloride of ammonium, spirits of camphor, mistura cretæ, the fluid extracts of gentian, of rhubarb and of ginger, the ointment of the yellow oxide of mercury (Pagenstecher's), soap liniment, carbonate of magnesia, olive oil, pills of asafetida, compound cathartic pills, acetate and nitrate of lead, tablet triturates of santonin, the bicarbonate and the borate of sodium, the compound spirits of ether and the spiritus æther nitrosi, talcum and the tinctures of aconite and of cinchona (compound).

Dr. A. C. Matthews, of Earlville, N. Y. adds the fluid extract of cannabis indica, rectal suppositories of opium (and of belladonna), Tully's powder, and dialyzed iron.

And to complete this list we add tablets of sodium chloride for making normal salt solutions, Fowler's solution of arsenic and blue ointment. It would seem that with these medicaments always at hand, one should never be at a loss. Many of them are now made most compactly by the various drug houses. A colleague engaged in country practice has constantly in a vest pocket his hypodermic case and his thermometer in a hip pocket his case for minor surgery, in one side pocket his emergency case of twenty phials of tablets, in his other side pocket a similar case of bottles containing fluid extracts and essences; and in his buggy he has his handbag for obstetrical work or surgical possibilities.

Diabetes.—Dieulafoy, states the *N. Y. Medical Journal*, decries the rigorous diet which excludes all starches and sugars, because of the danger of rapid emaciation and of tubercular infection which always threatens in diabetic patients. Desserts, pastry, and preserves must be abstained from. The patient may have eggs, fish without sauce, broiled or roasted meats, herbaceous vegetables and gluten bread. Occasionally he may have potatoes or peas or similar farinaceous vegetables. He may sometimes substitute toast or crust for the gluten bread. Beer and milk are permitted, and also coffee and tea, with saccharin as a sweetener instead of sugar. The regimen should be very hygienic; baths, frictions, douches and massages are indicated. The skin should be stimulated, but not irritated. Exercise is important to hasten the destruction of muscle sugar; to this end walking and gymnastics are recommended. Profuse sweating and fatigue are to be avoided—for overexertion may induce a diabetic coma. Dieulafoy uses for drugs antipyrine, arsenic and alkalies, in the following manner: For one week, 5 grains of antipyrin and 3 of sodium bicarbonate in a cachet after each meal. During the following week for these cachets is substituted a tablespoonful of a solution made up of 1-8 grain of sodium arsenite in distilled water, taken after each meal. These two remedies are thus alternated for several months. At the same time alkaline waters are taken with or without wine (not sweet) at meals; chalybeate waters may be taken in appropriate cases.

The Recurrent Vomiting of Children.—J. Howland and A. N. Richards (*Archiv. Pediat.*, June, '07) conclude that a shock is exerted on an unstable nervous system which results in some unknown way in a diminished power of oxidation. The organism then loses the power to detoxify substances absorbed from the intestine which have been present in excess in that canal. These substances circulate in the blood, exerting their poisonous action; and they cannot be excreted by the kidneys because they are not brought to them in the proper form. They are probably excreted and reabsorbed by the stomach and intestine; so that vomiting would appear to be eliminative and thus protective.

Magnesium Salts.—Meltzer and Lucas (*Jour. Exper. Med.*, May 25, '07) find that when introduced subcutaneously these salts are largely eliminated through the kidneys and that in nephrectomized rabbits the susceptibility to the toxic action of magnesium salts is increased by about 50 per cent. The profound anæsthesia induced by this chemical may continue for twenty-four hours or longer. Magnesium salts are also cumulative in their action, so that several small doses produce an effect equal to that of all the doses in a single injection.

Eczema is not caused by a parasitic organism, declares H. Waldo (*Brit. Med. Jour.*, March 2, '07). The monococcus, which Unna has found to appear in mulberry-shaped masses in this disease, is now thought to be a staphylococcus of low virulence frequently found on the skin. The vesicle of eczema is at first sterile, as Jabouret has shown; this would seem to preclude a specific germ. Anti-microbial applications are therefore not appropriate; they are, indeed, likely to irritate and intensify a simple eczema. In the diagnosis one must exclude seborrheic dermatitis, which are benefited only by antiseptic remedies. Various food toxins and the products of imperfect metabolism and malassimilation circulating in the blood can produce erythematous, and if such factors do not often produce an eczema they may aggravate an existing one; they can surely produce an eczema in a predisposed subject. To counteract any such tendency a proper diet should be prescribed with correctives, such as salicin. Water should be drunk between meals. Soothing and protective applications are all that is required locally. The amount of salt which the patient is accustomed to take with his food had best be lessened or entirely cut off. Many cases of eczema are produced by susceptible individuals handling poisonous plants; one must be constantly watchful for this cause. Eczema dependent upon a neurotic tendency is difficult to manage; it usually occurs in people who are broken down in health. It is not much benefited by ordinary treatment unless a climatic change is insisted on. Cod liver oil is proposed by Waldo as likely to do "as much good as any internal remedy." Sleep is essential. There is no better restorative for nervous conditions. Cleanliness of the eczematous surface should be maintained by means of a weak alcohol solution; or, if the lesion is very acute, with weak warm gruel instead of soap and water, which should not be used on an eczema. "Few people know what a healing remedy spirit is on the skin." A weak preparation of spirit and tar painted on once or twice in the twenty-four hours, in addition to the ordinary application, at once relieves the itching and is often curative. Where there is much thickening or fissuring some such local reducing agent as salicylic acid should be used in varying strength. In severe eczemas rest and confinement to bed are essential. Alcohol is contraindicated internally. (A soothing application for an acute eczema, a stimulating one for a sluggish or chronic lesion—success in treating this disease is absolutely conditional upon the observance of this maxim.)

Electricity in the Home is the title of a paper by N. W. Hillman in *Cassier's Magazine* for November last, which should interest the physician because of its suggestions upon matters somewhat related to medical practice. Mr. Hillman believes that because of their high efficiency electric appliances in domestic science are really cheap. His own home is fitted with a complete electrical cooking and baking cabinet, affording economy of space, since it takes the place of a range, a kitchen table and a cupboard. He has a sewing room electric motor, a motor-driven washing machine and wringer, luminous electric radiators, electrical flatirons, door-bell and cigar-lighters and a very complete lighting system. His average monthly bill for more than two years has been \$6.09, at a price of five cents a kilowatt hour, with a family of five. Electricity, per unit of heat, costs more than gas, yet Mr. Hillman urges the use of the former because of economy in operation and by having combi-

nations of many devices. His electric egg steamer is used also in cooking potatoes and cereals; and (what should be very suggestive to the pediatricist) in heating a baby's food, steam is produced in forty-five seconds; and in three minutes more eggs are boiled and the current cut off. The same expedition obtains with the electric broiler, frying pan, oven, grid and coffee percolator. Practically no heat is wasted and the ultimate cost seems no greater than by the older and comparatively cumbersome culinary methods. Electric radiators save coal in the late chilly days of spring, and in the late Fall, so that furnace heat need not be begun so early. The cost of these devices may be judged by that of a kitchen cabinet for two persons at \$30 and for five at \$60; a sewing motor costs \$10 to \$12, and its operation about one cent an hour. No doubt the natural law will obtain here as elsewhere—that with time and increased popularity the cost of electricity and of the paraphernalia for its use will be greatly reduced.

Medical Phases of Dental Disorders.—S. A. Hopkins (*J. A. M. A.*, June 30, '07) makes no doubt that the eruption of the first teeth does sometimes disturb the delicate organism of the growing child; but this would be reduced to a minimum were there no other etiological factors. We fail frequently to diagnose the morbid conditions which are actually due either directly or in a reflex way, to dental disorders. When eye and ear cases present themselves a careful examination of the mouth should be made. Hopkins makes in this regard a special plea for children at the school age, among whom about one-quarter of the cases of earache are either originated or continued by the presence of diseased teeth. The disturbing influence of the sixth year molars is not generally recognized and is generally of no importance; still their eruption may occasionally be accompanied with symptoms—possibly a mild tonsillitis or stomatitis or even cervical adenitis. If in the latter case, there is no other evidence of tuberculosis, Hopkins advises delay in operating for such glands until the teeth have fully appeared and the mouth has returned to its normal state. During the next seven years of the child's life the condition of the mouth and teeth is largely responsible for its health and proper development; the teeth then suffer most and afford special opportunities for the reception and propagation of mouth bacteria. Caries of the first teeth is very rapid, and considering the number of infections that are liable to occur at this period we may reasonably assume that the buccal condition may have an important bearing on the development and spread of infection. Constant absorption from diseased gums and carious teeth must lessen resistance; and then the tubercle bacilli may find their entrance here. (This is undoubtedly so). The eruption of the twelve year molars is usually unnoticed; but in rare cases it may cause severe constitutional symptoms, especially when maxillary development is tardy and pressure results. Antrum abscess very often has its cause in disease of the posterior superior teeth; nasal disease may also have its origin from these and the superior incisors. Neuralgia and unusual and sometimes obscure ocular troubles may be traced to this source, and the constitutional disturbances are often severe and serious. Suppuration from a wisdom tooth is always to be dreaded because of the tendency to burrowing; life may even be in jeopardy from this cause, which may induce obscure, typhoid-like and ma-

lial symptoms. Hopkins believes that the inspection of school children's teeth would be followed by marked improvement in public health as well as being a valuable educational measure.

Auto-intoxication in Relation to the Eye.—G. E. Schweinitz finds that a number of morbid ocular conditions such as neuritis and retinitis, muscle anomalies, affection of the cornea, the sclera and the cornea may possibly or even probably be attributed to auto-intoxication, more especially from the gastrointestinal tract. There should in such cases be accurate and thorough investigation of the urine. Although we do not know the entity of a single auto-intoxication (except the acidosis of diabetic coma) and although we know that no known auto-intoxication is to be attributed to any known end-product of any known metabolism we are aware, from clinical analogy at least, that auto-intoxications exist even if their true nature is yet a secret. Moreover, we do know that after food is swallowed and before the end-products of assimilation are eliminated there may be processes arising under abnormal conditions which yield poisonous products foreign to normal metabolism, the reabsorption of which may be followed by definite symptoms. Ocular troubles may also, in the absence of other causes, arise, largely in the corneal-scleral and uveal tracts, and probably, in so far as the nervous apparatus is concerned, in manifestations which we term acute or chronic retrobulbar neuritis. We do not know whether these toxins actually are the only and sole cause of these conditions, but they may certainly be considered accessory causes, they may play a certain part in the production of the symptoms, and at times are probably the direct cause of their continuance, even when other more commonly accepted etiological factors have ceased to be active.

Bonaparte at Jaffa.—The *British Medical Journal* reports a recent lecture by Prof. Forgue of Montpellier on the respect that practitioners should have for human life. In this lecture the well-known story is told "as it was told by Desgenettes himself," concerning the question which arose when the French were about to evacuate Jaffa, as to what was to be done with the plague stricken soldiers in the hospital. As historic accuracy is here essential, Desgenettes's narrative is rendered verbatim:

"Shortly before the raising of the siege—that is to say, on the 27th—Gen. Bonaparte sent for me very early in the morning to his tent, where he was alone with his chief of the staff. After a short preamble as to our sanitary condition, he said to me: 'If I were you I should end at once the sufferings of those stricken with plague and should end the dangers which they threaten us by giving them opium.' I answered simply, 'My duty is to preserve life.' Then the General developed his idea with the greatest coolness, saying that he was advising for others what in like circumstances he would ask for himself. He pointed out to me that he was, before any one else, charged with the conservation of the army, and consequently it was his duty to prevent our abandoned sick from falling alive under the scimitars of the Turks. 'I do not seek,' he went on, 'to overcome your repugnance, but I believe I shall find some who will better appreciate my intentions.'"

Continuing his narrative, Desgenettes states that opium was, as a matter of fact, given to some thirty patients. It happened, however, that a certain number

rejected the drug by vomiting, were relieved, got well, and told what had happened.

Electricity in Ophthalmic Practice.—W. F. Coleman (*J. A. M. A.*, April 27, '07) uses galvanism by means of a large positive pad of three by four inches at the nape of the neck, and a negative pad to the closed lids for ten minutes daily; the current is from 5 to 10 M. A. The electrodes of the sinusoidal current are similarly placed and from 30 to 35 volts, according to tolerance, are used for the same length of time. Coleman reports forty-three cases—atrophy, vitreous opacities, amblyopia, the sequelæ of iritis, intraocular hemorrhage, retinitis pigmentosa, retinal thrombosis, sequelæ of central retinitis, asthenopia, xanthelasma, paresis of ocular muscles, nictitation and pterygium. In nearly all of these conditions there was improvement or recovery in a fair percentage of cases; the result in some was phenomenal, considering that all other means had failed.

Ingrown Toe-nails.—A small piece of cotton is saturated with a solution of liquor potassæ hydroxide (3j) in four ounces of water, and pressed gently in between the upper surface of the nail and the mass of tender granulation-tissue (*Amer. Jour. Clin. Med.*, April, '07). The alkali soon permeates the substance of the nail without irritating the sore; but to be effective the cotton must be kept constantly moist. The softened part of the nail is to be carefully wiped off every morning. In a few days the nail will have become sufficiently thin and soft to be cut away without pain. The applications must, however, be continued until all granulations disappear and until healing is well under way.

Prolonged Artificial Respiration.—J. W. Trask, in the *Military Surgeon* reports two recoveries after having been immersed in water for a time beyond which resuscitation is generally not hoped for, and he concludes that the Sylvester is the best method of artificial respiration without apparatus, and when there is but one operator. The combined Sylvester and Howard methods are the best where there are two or more to do the work. The Life Saving Service prescribes these methods. Schafer's results by his new method are so good that they would appear entitled to corroborative experimental work by others. An apparatus consisting of an O'Dwyer intubation tube attached to an ordinary bellows should be very effective in cases of apparent drowning, because the recharge of air can be made as great or greater than in normal respiration; here one operator will suffice, and he need not possess the amount of strength and endurance required in the other methods. One should persist in artificial respiration for at least two hours in all cases, especially where the submersion has been for thirty minutes or where the length of time has been in doubt. In the first of Trask's cases the man was in the water about half an hour, and his resuscitation "was due entirely to the persistence and perseverance of the life saving crew, who kept up the artificial respiration for over an hour and three-quarters, and thus supplied the energy for breathing until his blood and tissues had received enough oxygen to continue the process for themselves." The second case was in the water for probably half an hour, yet the boy recovered after somewhat over an hour of artificial respiration.

MISCELLANY

1,060,067 plague deaths is the appalling total of victims in India for the first six months of the present year. It is the highest ever recorded, surpassing that for the entire twelve months of 1904, when 1,022,000 people perished from this cause.

The Paris Medical Faculty, states *Science*, has announced that henceforth the incumbents of the special chairs of anatomy, histology, physics, chemistry and pharmacology, will not be allowed to take posts as physicians or surgeons in the hospitals. Professors of these branches must agree to devote themselves exclusively to their educational work.

Unclassified Fevers.—Dr. J. Tyson recently presented before that Association of American Physicians a number of temperature charts illustrating cases of fever which are hardly classifiable as typhoid, influenza, malaria, or any other type due to a discoverable cause. Such cases should be taken into consideration in public health reports and hospital statistics.

Application of the Bier cup to an abscess for four or five minutes twice a day is more beneficial than a single ten minutes' seance (*Am. Jour. Surg.*) Too prolonged or too rapid and vigorous use of the pump will frequently cause a rupture of the superficial vessels and perhaps severe sloughing of the superficial parts, the result of the treatment being worse than the primary cause of the trouble.

When to Drink Tea.—The *London Hospital* concludes that the original popular use of tea as a stimulating beverage with breakfast is justified and harmless; but that its indiscriminate consumption with meat foods or during proteid digestion is likely to be harmful—China tea, however, less so than the Indian variety, because of its lesser tannic acid content. Ginger beer seems to the *Hospital* to be practically without influence upon digestion.

A Cerebrospinal Meningitis Antitoxin.—It is most gratifying to learn that a serum against this dreadful disease has been evolved by Prof. Simon Flexner and his associates in the Rockefeller Institute. If the hopes concerning it are realized the event will be truly epochal in medicine, for thus will be found an effectual remedy against a disease which has annually tortured to death 40,000 human beings in the United States alone.

The Ziegler Magazine for the Blind, states the *St. Louis Medical Review*, is the first publication of its kind in this country, and the second in the world. Mrs. William Ziegler is now sending this publication to the blind of America; this gentlewoman has given the funds to carry out this enterprise, which is estimated to cost her about \$70,000 a year. The magazine is printed according to the Braille system and weighs nearly a pound.

The phenomena of first love are ascribed by Sir James Crichton Browne to two causes: "A species of cerebral commotion," and "a stirring of some hitherto dominant association centres by an appropriate affinitive impression." Will the producers of Mr. Gibson's pictures, the publishers of Mr. Richard Harding Davis' "marshmellow" novels, the editors of *Life*, of the *Ladies' Home Journal*, and of other enterprises devoted to the effusion of correct amatory sentiments, please copy?

The Cucumber.—It is said concerning this delectable vegetable that, like many a dogged wrestler, it fights best when it is down. But such need not be the case if it be cut into thin slices, well vinegared and peppered, and thoroughly masticated. It should then be quite digestible, considers the *Medical Review of Reviews*; "it cannot, indeed, be otherwise, when it is remembered that it consists mainly of water, and that those parts which are not water are almost exclusively cells of a very rapid growth."

Acute Pharyngeal Oedema.—In a case reported by G. Link (*N. Y. Med. Rec.*, March 2, '07) there was urgent dyspnoea following upon an attack of double tonsillitis. Examination, in so far as was possible, revealed a very oedematous condition of the pharyngeal mucosa. An attempt at intubation was unsuccessful because of the want of proper instruments. The dyspnoea becoming grave, a tracheotomy was done. Recovery was uninterrupted and complete, the oedema rapidly subsiding. Later, both tonsils were carefully removed by dissection.

Mrs. Sage's Gift to the City Hospital.—\$300,000 has been given by Mrs. Russell Sage to the City Hospital and the City Home on Blackwell's Island. The purpose of this gift is for the endowment of the Russell Sage Institute of Pathology, which will act as pathologist to the hospital and the home. It is expected by the venerable donor, that special attention will be devoted to research work in the diseases affecting the aged. The organization is to be made according to the plans and under the direction of Drs. E. G. and T. C. Janeway.

An All-Sufficient Test of Sobriety.—A licensed victualler, states the *London Globe*, having been accused of intoxication, called upon one Dr. Blacklock to give evidence in his defense. The doctor said that immediately after the police visited the defendant, the latter called upon him and, as required, walked perfectly along a straight line, stood upon one leg for three-quarters of a minute, repeated the word "hippopotamus" quickly and distinctly, and told the time by a watch to a quarter of a minute. The defendant was exonerated upon this very adequate testimony.

Goldwin Smith, in addressing University of Toronto students, advised them not to overwork; and he attributed his own longevity to the short hours he put in at school. The human mind, however, is not like a pot into which anything could be poured. It must have receptivity, or it cannot digest what it has received. He considered that athletics have gone beyond all limits. When at Eton he played football; and nothing was kicked but the ball. Now everything is kicked but the ball. There is now also great danger in hazing, a most ignoble and unmanly thing that makes strong boys tyrants and weak boys cowards.

Hints on Tuberculosis.—The New York Health Department has had printed a million circulars, more than 60,000 of which are in the form of a catechism for the use of school children, on consumption. The remainder are small pocket cards, printed in red and black, in English, German, Italian, Swedish and Yiddish, and designed for the instruction of the public in general. These cards are sent all requesting them, to manufacturers, merchants, to all members of the police and street cleaning forces, to the State National Guard, and to such large employers as the Metropolitan and the Interborough Street Railway Company.

SOME OF THE NEWER METHODS OF URINALYSIS* AND THEIR CLINICAL IMPORTANCE.

JAMES C. TODD, M.D.,

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IN my talk this evening, I do not wish to magnify the importance of the laboratory in medicine. The laboratory cannot of itself make diagnoses, nor directly indicate treatment, but is only one of the several links. It is, however, an indispensable link, if we regard diagnosis in its true meaning of "knowing all the way through," and not merely of giving a name to a disease. For this, laboratory and clinical methods cannot be separated.

Although my subject is "Some of the Newer Methods of Urinalysis," I have been governed, in selecting the methods of which I shall speak, less by their novelty than by other considerations. I have tried to keep in view the object of these talks as it is stated in your printed announcement: "... a series of demonstrations and talks upon methods of examination which have proved their practical importance. . . . and which should be more widely applied to the study of cases by all members of the medical profession." What I shall say is, therefore, for the practitioner, rather than for the laboratory man.

At the start it is probably worth while to say a word about

PRESERVATION OF THE URINE.

This subject has not received the attention which it deserves. Every physician has frequent occasion to keep urine several days before examination; and, as is well known, a satisfactory examination is impossible after decomposition has begun.

Undoubtedly the best preservative is boracic acid, about five grains to four ounces of urine. This raises the specific gravity one or two points, but does not interfere with the chemical tests nor the microscopical examination. Boracic acid is most conveniently used in the form of five grain tablets; but tablets containing sugar of milk should of course be avoided. Ogden¹ not long ago made a series of experiments with all the ordinary preservatives, including boracic acid, formalin, salicylic acid, benzoic acid, mercuric chlorid, chloroform, chloral, camphor and thymol. He found formalin—one drop to four ounces—to be quite as efficient a preservative as boracic acid, preserving urine unchanged from three days to three weeks, according to the character of the urine. There is, however, danger of using too much formalin. When added in proportion of one drop to one ounce, it will reduce Fehling's solution and give Heller's test for albumin; and is likely to cause a precipitate which greatly interferes with the microscopical examination. None of the other preservatives which Ogden tried, delayed decomposition so long as boracic acid and formalin, and most of them interfered with the subsequent examination.

*An address before the Denver Academy of Medicine, Apr. 5, 1907.

¹ Ogden, Boston Med. and Surg. Jour., June 22, 1905.

THE "PANCREATIC REACTION."

One of the most interesting of the newer methods is that devised by Cammidge in conjunction with Mayo Robson for the diagnosis of acute pancreatitis—the so-called "pancreatic reaction."

The original method was described in 1904.² There were certain disturbing factors which, in many cases, rendered the results confusing and untrustworthy. Cammidge has therefore improved and simplified the method; and has recently published details of the improved technique, together with the results of 100 consecutive urinary examinations.³

The method is tedious, but no one of its steps is difficult. It consists essentially in boiling the urine with hydrochloric acid, treating with tri-basic lead acetate, and applying the phenylhydrazin test. In well-marked cases of pancreatic inflammation, a precipitate of yellow, flexible, hair-like crystals occurs within a few hours. These crystals are evidently a compound of phenylhydrazin with some unfermentable carbohydrate, derived by the boiling with hydrochloric acid from some antecedent substance, which, as a result of metabolic disturbances, is excreted in pancreatitis. Cammidge is uncertain as to its exact nature.

His results with the improved method are very encouraging. In the vast majority of cases, operation and the later history have confirmed his conclusions based upon the urine examinations. Very little has been done by other workers. Should further clinical observation confirm the claims which have been made for it, this is certain to be a very important addition to our methods of diagnosis.

In connection with the pancreatic reaction, I should like to demonstrate the

PHENYLHYDRAZIN TEST FOR SUGAR.

It has long been known that phenylhydrazin in combination with certain carbohydrates, forms characteristic crystalline compounds. Von Jacksch first applied this fact to clinical work.

The phenylhydrazin test is the court of last appeal in the recognition of sugar in the urine. It is at once the most sensitive and the most reliable of our clinical tests, excepting, perhaps, polarization with the best instruments. Stern⁴ gives its limit of reliability as 0.05 per cent. of glucose, while the copper and bismuth tests are reliable only to 0.3 per cent. It is capable of detecting the traces of sugar in normal urine (McEwen⁵). It does not distinguish between the different sugars which may be found in the urine, but they can be distinguished by determining the melting points of the crystals.

As ordinarily applied, the test is rather too cumbersome for routine clinical work; hence it has not found favor with physicians generally. When applied, however, by the method suggested by Kowarsky in 1899, it is very simple, and requires little more time than Haines' or Fehling's tests.

Kowarsky's method is as follows: In a test tube h-

² Cammidge, Lancet, London, March 19, 1904, and Brit. Med Jour., April 2, 1904.

³ Cammidge, Brit. Med Jour., May 19, 1906.

⁴ Stern, Journal Am. Med. Ass'n., Sept. 15, 1902.

⁵ McEwen, Am. Jour. Med. Sci., June, 1905.

takes 5 drops pure phenylhydrazin, 10 drops glacial acetic acid, and 1 c. c. saturated solution table salt. This forms a curdy mass. Two or three cubic centimeters of the urine are added, and the mixture boiled for at least two minutes. It is then set aside to cool slowly. In the presence of any considerable amount of sugar, a yellow precipitate appears within a few minutes; when traces only are present, it may not appear for a few hours. Under a low power of the microscope the sediment is seen to consist of yellow, needle-like crystals, arranged in sheaves and rosettes. Unless these characteristic crystals are found, the test is negative.

Kowarsky's modification is not so sensitive as the original method and will not detect sugar in normal urine. Although many sugars are capable of forming similar crystals, yet, in practice, the test reacts only to glucose and levulose. Levulose is an unimportant fallacy.

ACETONE BODIES.

The occurrence of acetone in the urine in many gastro-intestinal disturbances, in fever, and especially, in diabetes has long been recognized. Within the past few years acetonuria has assumed renewed importance, particularly to the surgical portion of the profession, because of the recognition of its frequent association with a serious, and often fatal toxemia following anesthesia.

Under the name of acetone bodies are included three closely related substances: acetone, diacetic acid and beta-oxybutyric acid. Acetone results from decomposition of diacetic acid, and diacetic acid in turn from oxybutyric acid by a process of oxidation. The origin of oxybutyric acid is not definitely known, although it is generally believed that its principal, if not its only source within the body, is in some complex metabolic disturbance with abnormal destruction of fats. When the derangement is mild, acetone only appears in the urine; as it becomes more marked, diacetic acid also appears; and when severe, beta-oxybutyric acid is added. The three substances appearing in the urine in this order thus indicate an increasing disability of the body to carry on its metabolic processes.

Whenever acids are produced in the body—or are introduced from without—in sufficient quantity to lower the alkalinity of the blood, the symptoms of acid intoxication appear. The condition is probably due chiefly to acidosis in general, not to the specific action of any one acid, since the symptoms have been produced in animals by introduction of various acids, both organic and mineral. Diacetic and beta-oxybutyric acids, are, however, the most common and important of the acids producing acid intoxication as a clinical condition; and the experiments of Wilbur¹ tend to show that beta-oxybutyric acid has a similar, though less, toxic effect even when neutralized.

The most significant clinical sign of acid intoxication is the presence of acetone in the urine. Acetone is harmless in itself, and often occurs in the urine unassociated with any symptoms; but its presence is evidence of some metabolic derangement with production of acetone bodies, which if the oxidative and excretory functions of the body cannot meet the demand, will have serious consequences.

The frequency and importance of acetonuria in diabetes is so well known that I shall not speak of it, except to say that frequent examinations of the urine for acetone yield a better idea of the progress of the disease than do examinations for sugar. Nor shall I more than mention the occasional occurrence of acid intoxication as an apparently independent condition. Here intestinal poisons probably cause the metabolic disturbance which results in over production of acids. Such cases offer decided difficulties in diagnosis, which would probably be impossible without detection of acetone or diacetic acid in the urine.

The recent widespread revival of interest in acetonuria is due to a constantly increasing number of reports of delayed poisoning from anesthetics, always accompanied by acetone in the urine. The idea that the poisonous effect of an anesthetic is over as soon as the patient has regained consciousness is being discarded.

Since 1890, occasional deaths ascribed to the late effect of anesthetics have been reported. In general, the autopsies revealed only extensive fatty degeneration, particularly marked in the liver. Some of these cases, even as late as 1903, were reported as acute yellow atrophy of the liver occurring as a sequel to operation or anesthesia. It is only within the past three years that a relationship between such cases and acetonuria has become well recognized. The comparative frequency of an exactly similar toxic condition occurring independently of anesthesia, especially in children, is also attracting attention. In 1904, Brackett, Stone and Low² reported in detail a remarkable series of cases observed within a period of five months in the Boston Children's Hospital. These cases more than any others, have stimulated observation along this line. Seven of the patients in their series developed alarming symptoms 12 to 48 hours after operation, and three died. The similarity of the symptoms was suggestive: "Vomiting associated with collapse; weak, rapid pulse; absence of fever until just before death; cyanosis causing extreme dyspnea in the fatal cases; apathy and stupor, alternating with restlessness at first, but in fatal cases deepening into coma and death; and the presence of acetone on the breath and in the urine." Diacetic acid was also present in the urine. The anesthetic was ether in every case; and the operations were nearly all trivial, most of them being tenotomies. In six cases of Brackett, Stone and Low's series, exactly similar symptoms came on without operation, generally within two days after admission to the hospital; but these cases were milder, and only one death occurred. Autopsies in all the fatal cases showed extensive fatty changes, especially in the liver. All of these patients were children; most of them were nervous, frightened, or homesick; and all of the fatal cases had extensive muscular atrophy. The amount of acetone and diacetic acid in the urine bore no relation to the severity of the symptoms.

Similar cases have been described in this country by Brewer,³ Kelly,⁴ Hubbard,⁵ Bevan and Favill,⁶ and others.

¹ Brackett, Stone and Low, Boston Med. and Surg. Jour., July 7, 1904.

Wilbur, Journal Am. Med. Ass'n., Oct. 22, 1904.

Lewis Beesly¹² has studied a considerable number of cases in the Royal Hospital for Sick Children, Edinburgh, and concludes that, while symptoms may develop after operation without pre-existing acetonuria, yet they are much more apt to appear and are more severe, if the urine contains acetone before operation. He does not, however, regard long continued acetonuria, such as occurs in diabetes, as so ominous as acute acetonuria, such as often occurs in gastrointestinal disturbances, notably appendicitis, and in uterine fibromatosis. He finds chloroform much more dangerous than ether. Of 19 cases of acute perforating appendicitis with acute acetonuria operated upon under chloroform, 14 died with symptoms of acid intoxication. Of 24 exactly similar cases operated upon under ether, five developed symptoms but none of them died. To all cases in which trouble from this source is anticipated, he now gives 15 grains of sodium bicarbonate t.i.d. for eight days previous to operation, with very satisfactory results.

I think we can sum up the practical importance of acetonuria as shown by these and other recent clinical observations as follows:

(1) The clinical similarity of diabetic coma, delayed poisoning from anesthetics, and the so-called cryptogenic acid intoxication seems to indicate their origin in a similar metabolic disturbance. Mild grades give no toxic symptoms; severe grades are accompanied by very grave symptoms and generally terminate fatally.

(2) Whether the condition is due to the presence of diacetic and beta-oxybutyric acids in the blood, as is probable or to other toxic products, its most trustworthy clinical sign is the presence of acetone or diacetic or both in the urine.

(3) This obscure metabolic disturbance can be induced by anesthetics, particularly chloroform, and also, but to a less degree, by fright and other mental disturbances, gastro-intestinal toxemia, and other causes not understood.

(4) Persons with acetonuria but no toxic symptoms are already suffering from it in mild degree, and are much more likely than others to be precipitated into a dangerous state of acid intoxication. They are therefore unfavorable subjects for anesthesia; particularly so when the acetonuria is not of long standing. Acute gastro-intestinal disturbances are often accompanied by acute acetonuria, hence the relative frequency of acid intoxication following operations for appendicitis.

(5) The occurrence of this condition is much more common than the paucity of reported cases would indicate. The symptoms have been variously attributed to delayed shock, sepsis, etc. This was well illustrated in the discussion of Bevan and Favill's paper at the Portland meeting of the American Medical Association. Each one who entered into the discussion recalled similar cases in his own experience.

Tests for acetone and diacetic acid should be made a matter of routine in urinary examinations, particularly in cases of diabetes and in surgical cases. There is no good clinical test for beta-oxybutyric acid; but

since acetone and diacetic acid always precede and accompany it in the urine, a test for it is unnecessary in practice. It is essential that urine to be tested for these substances be fresh.

Probably the simplest and best clinical test for diacetic acid is the well-known Gerhardt test. This was used by most of those who have observed diaceturia after anesthesia. A new test—really an improvement upon an old one—has lately been published by Lindemann.¹³ He acidifies about 10 c. c. of the urine with five drops 30 per cent. acetic acid, and adds five drops Lugol's solution, and about two c. c. of chloroform. The chloroform does not change color if diacetic be present, but turns red in its absence. He claims this test to be more reliable than Gerhardt's, in that drugs will not give it; and in a series of comparative tests he has found it much more sensitive.

The tests for acetone in general use are Legal's and Lieben's, and with these you are probably familiar. Neither is entirely satisfactory. The physician wants a test which is reliable and reasonably sensitive without distillation of the urine, which is easy to apply, and which gives an easily recognized end reaction. The tests recently proposed by Frommer¹⁴ and by Lange¹⁵ seem to meet these requirements.

Frommer alkalizes about 10 c. c. of the urine with two or three c. c. of 40 per cent. caustic solution, adds 10 or 12 drops or 10 per cent. alcoholic solution of salicylic acid, and heats the upper portion nearly to the boiling point. In the presence of acetone a purplish-red color appears in the heated portion. This test is very satisfactory in practice.

Lange's test is a modification of Legal's, but is more sensitive and gives a sharper end reaction. To a small quantity of urine is added about one-twentieth its volume (one drop for each one c. c.) of glacial acetic acid, and a few drops of fresh concentrated aqueous solution of sodium nitro-prussid. A little strong ammonia is then run gently upon its surface. If acetone be present, a purple ring will form within a few minutes at the junction of the two fluids.

I mention Lange's method for the benefit of those who prefer the "ring" tests. The ring method of applying tests has deservedly become very popular. Probably the best device for this purpose is the "horismoscope," which has been widely advertised, and with which you are no doubt familiar. Personally, I consider a conical glass, one side of which is painted black, part white, to be every whit as satisfactory, besides being less expensive and much less easily broken. By inclining the glass, the second fluid can easily be run in upon the surface of the first by means of a medicine dropper so as to form a sharp line of contact. Boston's pipette method, which seems to be widely used, is open to serious objections. Pedersen¹⁶ has recently suggested the use of a long medicine dropper in place of Boston's open pipette, and this is a distinct advantage. The fluid which is to form the upper layer is drawn into the dropper to its full ca-

¹² Brewer, *Annals of Surgery*, Oct., 1902.

¹³ Kelly, *Annals of Surgery*, Feb., 1905.

¹⁴ Hubbard, *Boston Med. and Surg. Jour.*, June 29, 1905.

¹⁵ Bevan and Favill, *Jour. Am. Med. Ass'n.*, Sept. 2 and 9, 1905.

¹⁶ Beesly, *British Med. Jour.*, May 19, 1906.

¹³ Lindemann, *Muench Med. Woch.*, Vol. LII, No. 29.

¹⁴ Frommer, *Berliner Klin. Woch.*, Vol. XLII, No. 31. Reviewed by Hastings, *N. Y. Med. Jour.*, Sept. 8, 1906.

¹⁵ Lange, *Muench. Med. Woch.*, Vol. LIII, No. 36.

¹⁶ Pedersen, *New York Med. Jour.*, Aug. 22, 1906.

capacity. Half of this is then forced out and the other fluid drawn in. The bubble between the two fluids will rise to the top, leaving a sharp line of contact. The insurmountable objection to this method is the small diameter of the column of fluid, the ring being less distinct than with a greater thickness. When the ring is white, as in the case of albumin, it should be viewed against a black background. For colored rings, I find that nothing brings them out so clearly as to view them against a sheet of thin white paper held toward the light.

EHRLICH'S DIAZO REACTION.

While this test is by no means new, having been published twenty-five years ago, yet more has been written upon it within the past few years than upon any other urinary test. That is my reason for discussing it here. Considering its simplicity and the vast amount of evidence as to its value which has accumulated, it is remarkable that the average well-informed practitioner knows very little of it, and rarely or never uses it in his practice.

The reaction depends upon the presence in the urine of a substance—the so-called "diao substance"—which, when treated with diazo-benzol-sulphonic acid and ammonia, produces a characteristic red color. After twenty-five years of study, the exact nature of the substance is still unknown. It is certainly not the result of intestinal putrefaction, and bears no relation to indican; nor does it depend upon fever, as its presence in many afebrile cases shows. It is not driven off by boiling; in fact the reaction becomes more marked as the urine is concentrated.

To use it intelligently, the physician should realize that it is an empirical test. It has been met with in a considerable number of diseases, and therefore cannot be claimed to be pathognomonic of anything. It is only an important symptom. Its clinical usefulness is practically limited to the diagnosis of typhoid fever, the prognosis of pulmonary tuberculosis, and the differential diagnosis of measles. Among several hundred diazo tests this winter, I have found a distinct reaction only in these three diseases. In one case of suspected typhoid a doubtfully positive reaction was obtained, and the case afterward proved to be one of pancreatic abscess. It is a safe rule to regard all doubtful reactions as negative.

Typhoid fever. While the diazo reaction is not so closely identified with the disease as is the Widal reaction, yet the simplicity of the test makes it even more widely useful. It can easily be made a matter of routine by every physician. Hastings¹ states that "the reaction is held to-day of equal importance with the Widal test and urine cultures in Ehrlich's laboratory at Frankfurt."

A positive reaction can be obtained in nearly every case of typhoid fever during the second week at least. Combining the statistics of seventeen observers, I find 2,621 cases of typhoid, of which 2,266 or over 86 per cent. gave a positive reaction. The lowest percentage was 52 per cent.; the highest a little over 97 per cent. These percentages, however, do not at all accurately represent the real number of cases showing the reaction. They are much too low because a very

large number of the examinations were made late in the disease, and even during convalescence. Billings,² in a report of the work done with the diazo in conjunction with the Widal reaction by the New York Department of Health, concludes that the diazo is even more constantly present than the Widal, and that in the majority of cases it appears 48 hours earlier. A negative reaction, therefore, is almost positive proof that the disease in question is not typhoid, provided, of course, that the test is not made too late in its course.

The reaction is generally stronger in typhoid than in any other disease; hence as Cummins³ has shown, if the urine be highly diluted the reaction of other diseases is prevented, and a positive reaction becomes much more strongly suggestive of typhoid. He finds that with a dilution of 1:150 the reaction is practically pathognomonic of typhoid. This, however, is of less value than would appear, because many cases of typhoid will not respond at anything like that dilution. Personally, I have tried the dilutions in only a few cases of undoubted typhoid, but have not been able to obtain a positive reaction in greater dilution than 1:30. The discrepancy is probably to be explained by the fact that typhoid in this region does not compare in severity with that in Philadelphia where Cummins did his work.

Ordinarily, the reaction appears about the fourth or fifth day of the disease, although it is sometimes delayed. In contrast to the Widal reaction, it begins to fade about the end of the second week, and soon after entirely disappears. An early disappearance is generally a favorable sign. It reappears during a relapse, and thus aids in distinguishing a relapse from a complication, in which it does not reappear.

Tuberculosis. Recent work upon the diazo has been directed chiefly to a study of its significance in pulmonary tuberculosis. It is rarely found in mild cases, except during some acute complication. This is a suggestive point. In all of Budden's⁴ six cases of pneumonia and bronchitis with a positive diazo, an underlying tuberculosis was afterward discovered. It is probable that in many cases in which the reaction is unexpectedly positive, an unrecognized tuberculosis also exists.

After it once appears, it persists more or less intermittently until death. While an occasional patient showing the reaction may recover, Michaelis has put the average length of life as six months after its appearance. Most observers agree with him. Widstrand,⁵ who examined 2,000 urines from 204 consumptives, found a constant reaction in 37 of the 40 cases which died in the hospital. In his mild cases it was absent. Holmgren,⁶ from a study of the records of 158 cases, concludes that, following a strong reaction the average length of life is about six to eight weeks; while with distinct but not strong reaction the maximum is 18 months.

¹ Hastings, New York Med. Jour., April 18, 1903.

² Cummins, Univ. of Penna. Med. Bull., Sept., 1902.

³ Budden, British Med. Jour., May 6, 1905.

⁴ Widstrand, Hygiea, Stockholm, June, 1904. Abs. in Jour. A. M. A.

⁵ Holmgren, *ibid.*

⁶ Hastings, New York Med. Jour., Sept. 8, 1906.

Apparently about 10 per cent. of grave cases do not show the reaction (Wood²²), but it is possible that some at least of such cases have been tested during intermissions. The reaction is often intermittent, and is known to fade before death, generally the day before. Urine obtained from the bladder after death does not give it (Budden).

The conclusion is apparently inevitable that the diazo reaction is an extremely important sign in the prognosis of pulmonary tuberculosis. The only view to the contrary seems to be that which Budden and some others express. Budden²³ agrees that practically all the cases which give the reaction die, but holds that "these are precisely the cases in which the grave prognosis would be evident be evident from the history and the clinical signs. Even if this were invariably true, it is certain that the reaction would furnish the clinician a simple means of confirming his opinion. We must recognize, however, that a large proportion of physicians are not well versed in chest examinations; and also that, in addition to those cases the prognosis of which is evident from the physical signs, there are undoubtedly other cases in which the presence of a marked diazo reaction indicates the gravity of the situation at a time when the physical signs are apparently insignificant. Simon in his "Clinical Diagnosis" says that, personally he regards "the outlook as very bad in those cases in which the reaction is almost constantly present, even if the physical signs are but little pronounced." In his excellent article in the American Journal of the Medical Sciences, Arneill²⁴ corroborates this from his own cases, and gives a striking illustration in the case of a man who came to the hospital with a diagnosis of dyspepsia. The diazo reaction was marked. There were very slight signs of infiltration at the right apex, but eleven days afterward tubercle bacilli were found in the sputum, and later in the feces. The patient died six weeks after admission, the diazo being almost constantly present during the time.

Wood²⁵ suggests that the reaction be used in deciding whether consumptives can be benefited by a change of climate. While of course it would often be misleading if considered apart from the physical signs—as no laboratory examination ever should be considered—yet we cannot doubt that if it alone were relied upon, fewer hopeless cases would be sent West with the certainty of dying away from home and friends.

Measles. From the records of a number of observers, only about 20 per cent. of cases fail to show the reaction. It generally appears before the eruption and remains about five days. In the cases I have examined, it was never absent when the test was made before the fourth day of the eruption, and was never present after the fifth day. It does not appear in German measles, and is therefore useful in differential diagnosis.

I think we are warranted in summing up the aid which the diazo reaction offers to the practitioner as follows:

²² Wood, Med. News, April 4, 1903.

²³ Arneill, Am. Jour. Med. Sci., March, 1900.

²⁴ Wood, "Chemical and Microscopical Diagnosis," D. Appleton & Co., 1905.

(1) It is of great value in differential diagnosis of typhoid fever, generally appearing earlier than the Widal reaction and being nearly as constantly present. It can therefore be said to be "negatively pathognomonic." When obtained in high dilution, it has great positive diagnostic value. Its disappearance at the beginning of the third week indicates a mild case. Its reappearance points to a relapse rather than to a complication.

(2) It is a valuable and practicable aid in the prognosis of phthisis, particularly to those who are not skilled in examinations of the chest; and it may be the first indication of a fatal prognosis in an occasional case with very meagre physical signs.

(3) The reaction is useful in distinguishing between measles and German measles.

(4) Its presence in any disease not in the list of those generally producing it, particularly pneumonia, bronchitis and tonsillitis, should lead to suspicion of an underlying tuberculosis.

Certain drugs are said to interfere with or prevent the reaction. Among these are creosote, tannic acid and its compounds, opium and its alkaloids, salol, carbolic acid, and the iodids, some of which are frequently administered in typhoid and tuberculosis. They probably act upon the reagents used in the test, rather than upon the diazo substance itself.

Technique. While the test is really very simple, it is not possible to emphasize too strongly the importance of careful attention to technique. The early investigators were very lax in this regard. Many of them found the reaction in normal urine, and in all sorts of diseases. Undoubtedly, faulty technique and failure to record the stage of the disease in which the tests were made have been responsible for the bulk of the conflicting results reported.

The reagents required are:

- (a) Saturated solution sulphanilic acid in five per cent. hydrochloric acid.
- (b) 0.5 per cent. aqueous solution sodium nitrite.
- (c) Stronger ammonia.

One part of the sodium nitrite solution is added to 40 parts of the sulphanilic acid solution. Equal parts of the test solution thus prepared and of the urine are mixed in a test tube, and a small amount of ammonia is poured upon the surface. If the reaction be positive a bright red ring will appear at the junction of the mixture and the ammonia; and upon shaking a distinct pink or red color will be imparted to the foam.

If the test is to have any value, the following precautions must be observed:

- (1) The reagents must be accurately made.
- (2) They must be fresh. It is a good plan to make the sulphanilic acid solution once a month, and the sodium nitrite solution once a week. Older solutions will often give good results but it is not safe to depend upon them.
- (3) The solutions must be mixed in the proportion of one part of (a) to not less than forty of (b). Greene²⁶ mixed them in proportion of one to 100, and claims that thereby some of the other diseases are ex-

²⁶ Greene, Medical Record, Nov. 14, 1896.

cluded, and the reaction has more value as a sign of typhoid. Personally, I prefer the proportions generally adopted, one to forty, because Greene's method might exclude also some cases of typhoid which give a weak reaction. Much the better way to exclude other conditions is to make the test with diluted urine.

(4) The urine must be fresh, not more than 24 hours old. Urines several weeks old sometimes give the reaction, but others lose it within a short time.

(5) Due account must be taken of the concentration of the urine. A positive reaction can sometimes be brought out in a dilute urine by boiling until concentrated.

(6) Probably the most important source of error is in wrongly interpreting the color. The test must be performed by daylight. Many workers have considered only the color of the ring at the junction of the ammonia and the urine. A positive reaction gives a pure red ring without a trace of yellow, but rings of various shades sometimes closely approaching the red are frequently encountered and easily cause confusion. The essential feature is the color of the foam. This varies with the intensity of the reaction from an eosin pink to a deep crimson; but it is imperative that it be pink or red, not orange. I am in the habit of thoroughly shaking before the ammonia is added, and of pouring the ammonia upon the foam. The pink color instantly appears in the portion of the foam which the ammonia has reached, and is readily seen by contrast. This does not interfere with production of the red ring at the under surface of the ammonia.

RUSO'S REACTION.

In 1905 Russo¹⁷ published a test which he claims gives parallel results with Ehrlich's diazo reaction, and has certain distinct advantages, particularly in simplicity of technique and stability of the solution employed. His tests in a large number of diseases show an almost invariable parallelism between the two reactions. The test consists merely in the addition of four or five drops of a one to 1,000 aqueous solution of methylene blue to four or five c. c. of the urine. If it be positive, the urine turns emerald or mint green upon shaking; if negative, blue or greenish-blue.

The new test has attracted very little attention in this country. I can find only a few short notes and abstracts in our journals. A number of articles have however, appeared in English, German and French journals.

Rolleston¹⁸ has compared the methylene blue reaction with the diazo in 54 cases of typhoid, and finds that the former is more constantly present, appears earlier, persists longer, and more frequently reappears during a relapse. He has also obtained positive reactions in 18 of 20 cases of measles, and in several cases of scarlet fever, pneumonia, diphtheria and some other conditions. He believes that the diagnostic value of the reaction is similar, but not superior to that of the diazo.

R. Dunger¹⁹ reports examinations of 1,100 urines by both these methods. He did not find any marked

parallelism, but rather the opposite in a fairly large percentage of the cases. He concludes that Russo's reaction has no diagnostic value; but that, as had already been claimed by Cousin and Costa, and Gandy in France, it is simply a physical phenomenon due to admixture of a blue fluid with a yellow urine.

Within the past few months, I have applied the two tests to urines from more than 200 patients, representing over thirty pathological conditions. While a certain parallelism was evident, in that Russo's reaction was never negative when the diazo was positive, yet it was positive twice as frequently and in a much greater variety of conditions than the diazo. I am convinced that the test has no value, and that mixture of colors explains the whole phenomenon. I never obtained a reaction in a pale urine. When urines which gave both it and the diazo reaction were diluted to a light amber color they lost the methylene blue reaction but gave the diazo with only slightly diminished intensity. A deep amber urine which gave both reactions, was compared with a pale amber normal urine. When the darker was diluted to the same shade as the other, both gave a negative methylene blue reaction with the same shade of blue. When, upon the other hand, the lighter urine was brought to the color of the darker by addition of a little urine heavily charged with bile pigment, then the two urines gave a strongly positive reaction with the same shade of green. That the small amount of jaundiced urine did not in itself produce the reaction was demonstrated by mixing it with water in the same or greater proportion, and obtaining a negative reaction.

I have mentioned Russo's reaction chiefly to show how easy it is to be led astray by new and, especially, empirical methods.

Dementia Præcox.—A. Meyer concludes (*Jour. Nerv. and Ment. Dis.*, May, 1907) that in order to understand properly the dementia præcox group we must discover early disturbance of correct habits of thinking on the part of the patient. Only thus shall we be able to help him. Kraepelin created a disease entity on the ground of final symptoms, such as negativism, mannerisms, stereotypes and disorders of volition; yet he missed many factors which furnish a more intelligible insight of the condition. In the antecedent conditions of dementia præcox the individual is almost invariably found to have had abnormal ways of dealing with the situations of life, an inability to get square with events and a tendency to false adjustments. There may at first be a mere shirking of and slurring over of difficulties and secretiveness, a habit of excusing carelessness and of lack of determination in meeting difficulties or hypochondriacal complaints; or of fault-finding. More serious reactions are blind tantrums, hysterical outbreaks, mechanisms of partial suppression, with undercurrents of uncorrected false attitudes toward life conduct. Etiologically the constitutional make-up counts for much, but not in the vague sense of mere heredity and degeneracy. Much more is to be learned from the study of deterioration of habits and of the undermining of instincts and their somatic components. "The delicate balance of mental adjustment and of its material substratum must largely depend on a maintenance of sound instinct and reaction type."

¹⁷ Russo, *Riforma Medica*, May 3, 1905. Abs. in *Jour. A. M. A.*

¹⁸ Rolleston, *Med. Press and Circular*, London, Sept. 19, 1906.

¹⁹ R. Dunger, *Deutsche Med. Woch.*, Sept. 27, 1906.

OBSTETRICAL CHAGRINS.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

IT is not conditioned that the intricacies of college cramming are essential to perfect the physique of woman. Women with bookish brains, drilled and starred with scholastic gems of a university curriculum and soaring sensitiveness are seldom much sought after for connubial mates by men in general. The Lord did not declare to Adam and Eve: "Thou shalt put into handy pickle every queer skeleton of science, and even skim the majestic milky way of astronomic conjecture, in order to properly fulfill the functions of procreation which I the Lord have bestowed on you." He did not say divine commands like this: "You, man and woman, 'made in our own image, be fruitful, multiply, replenish the earth unitedly as one flesh, and subdue it,' AFTER you take a four years' preparatory course in geology and histology and anthropology and nerve-spleen." And the woman, our considerate Eve, was mentally too enterprising to docilely plod along with Adam as Adam's mere rib-mate. She grasped for a gleam of intrinsic knowledge of human nature. She had not been formed from the primal clay as had been Adam. She had been more handsomely elaborated from an already vitalized expression of physical existence and fact in life. She yearned for the mysterious and exciting secrets of the why and wherefore. She could not of herself yet quite comprehend what man and woman represented in the strange garden about her, or how she was to become the mother of unborn millions. Therefore she adroitly ventured a brief aside interview with a certain available bureau of information, and there learned that by a comprehension of the physical characteristics of her own and also of Adam's nakedness, though suggestive that a bit of mere clothing would hide this external difference, yet the tree of undraped knowledge would shake its ripened fruit, would release from thin barrier the simplicity of passive innocence, and bring forth by natural physiological forces the immensities of perpetual human propagation.

According to the analysis of Milton, Eve was poetically beautiful. Adam and Eve were mated by the isolation of environment and the infatuation of first love for each other. There were no distracting rivals competing for choice. In Adam's admiring eyes Eve was perfection of feminine loveliness. I conceive a vision of her physical attractions in her fresh young personality, her plump and wholesome figure, her graceful curves of form, her oval charm of features, her modest soul-lit eyes, her refined persuasive mouth, her sun-lighted wealth of hair, her pretty tapering hand, her fascinating neck and bosom, every part built on the perfect plan of sovereign love—and nevertheless, her first-born was a murderer! It is not recorded that Cain was even comely in form or face. I am rather persuaded that he did not resemble his mother Eve in heart or feature. While she carried Cain in her womb, Eve's gaze may have been unduly chained to the guile of some ferocious animal yet unsubdued by her husband Adam. Her offspring was abnormal in spirit and act if not in bodily formation. The first record of human accouchement on earth reveals a moral monstrosity—an object of acute chagrin forever to his hitherto contented and sanguine parents.

The womanhood of the world had not then begun to grievously deform itself with the flattening compression of whalebone and steel corsets, with the pivotal tilt to spine and abdomen of high heels, with the abusive pinch of narrow spike-toed shoes. Woman was costumed in harmony with the gift of nature. The Hawaiian dancing girls who were exhibited at the Philadelphia Museum several years ago had truly beautiful ankles and feet. The lightest soft leather sandals with which they were shod without hosiery left their feet innocent of any disfigurement, and the absence of constraints by corsets presented bodies so lithe and natural that a dislocated uterus or distorted liver or lung or facial reflex could not find the lodgment of a thought in the interested observer. And yet I mentally wondered if women like these had to ever endure a life-long heart-scald from their child birth hour because of bringing into the world mal-formed children?

But for example, there reverts an early instance in the world's human history, the celebrated case of Rebekah, who was doubtless as perfectly formed as were these Hawaiian girls, as prolific with the energy of outdoor life, all-in-all as pretty a woman as the world then knew—"a damsel very fair to look upon," and who went to Isaac to become his willing wife. Nevertheless, when her days for motherhood were fulfilled, Rebekah, by her first delivery, brought into the world twin children. The elder of these was Esau, and of such hairy nature that his skin resembled that of an animal—a revelation that filled his handsome mother with such unconquerable chagrin that she loved the smooth-skinned child, Jacob, instead. Hence she successfully plotted the maternal scheme by which her loved child, Jacob, might deceive his then blind father Isaac and obtain thereby the coveted family blessing of heritage and honor and prosperous power. By Rebekah's case we may infer that physical perfection in woman does not guarantee normal perfection in offspring.

There has long existed a claqué of social or sexual critics in our brainy country who lecture and write, doubtless to obtain butter for their bread, who talk a lavish deal of "stuff and nonsense" about the elevation of the race by the means of special and exceptional education of women or wives preparatory to the mission of the functions of motherhood. These fastidious talking theorists have seldom done and seldom do much themselves to demonstrate the superiority of children produced as examples of the doctrines they preach for others. A bunch of years ago I was interested in the experiments of a certain pair then lately married and quite up to date in the science of perfect progeny. The husband was an esthetic young lawyer of progressive thought. His newly married wife was a literary disciple of advanced type in the physiology of procreation. Both husband and wife would be religiously scientific in the production of offspring. When this wife became pregnant by the most approved hour and methods for their first child, they freely announced to interested friends that in order to have a perfect child physically and morally, sexual congress between parents would be rigidly abstained from till after the child was born. After such unnatural constraints, and the mother's capacity for suckling her babe being found defective, the menses early recurred and a second pregnancy followed. I was not the professional consultant and accoucheur—a female physician and professor from a woman's

medical college being chosen for the delicate mission—and no mistakes!

Both children were girls—delicate and difficult to raise. The padded brain of the mother did not contribute anything to the physical development above the average to her children. When these girls were about three and four years of age respectively, I was called to their cases. The elder one was cross-eyed, seemed of inferior intelligence, evinced evidence of peevish nervousness and chorea which the remedies already used had failed to relieve, she had leucorrheal discharge, and both girls were constantly disposed to hide away and indulge in the solitary habit. "This unfortunate complication is not usual," I said. "How do you account for it? I have understood that your preparatory procedures proposed the production of children perfect in all respects." "Yes, we have tried that," replied the mother, "and we have the chagrin of discovering that our plan has proved to be a failure." About that time I was engaged in a correspondence argument with the editress of an aggressive "down the animal in man" publication, issued at Washington, D. C. I stated to her the conundrum of this experiment in the perfection of children before birth. This wordy editress backwatered in her explanation. She interpreted that because the pregnant woman's natural recurrence of desires were mutually denied satisfaction for reasons agreed on, the erotic impulse or crave transferred itself to the developing child in utero, with the result that the girl was born with precocious propensity to solitary indulgence. It has long been my own opinion that undue or excessive sexual indulgence during pregnancy proves directly injurious to the brain and nervous system of the developing infant in utero—may and does dispose the child to spasms and mental storms during childhood; whereas, a reasonably moderate relief of the pregnant woman's sexual appetite, if desired by her experience, will consistently prove beneficial to her own nervous system and to that of her offspring under the insuppressible laws of physiological compensation.

In support of this deduction there recurs to me a special case in practice which I thoroughly investigated, aided, of course, by the admirable frankness of the parties most closely concerned. The husband was of ardent nature and responsively sensitive. The wife was refined and learned, of plump, elegant figure, of affectionate nature, enjoyed excellent health, and proved to be of exceptional warmth sexually. After pregnancy occurred this disposition did not abate, with result of continued and intense frequency. When the time for labor arrived its progress was abnormally slow. After about twenty-four hours the babe was delivered—a complete chagrin of disappointment. Notwithstanding the well-fleshed physique of the new mother, I was surprised at delivering a small, thin infant, little more than a skeleton in flesh. On the third day after birth this infant was seized with violent convulsions which drew its thin hands and feet and legs into unrelaxed contractions until death came on the eleventh day after birth. After the lesson of this unhappy case I have made it my rule, in the episode of anticipated childbirth in my practice, to fatherly caution the husband and wife to be consistently abstemious in yielding to the promptings of sexual desire or habit, lest constitutional harm result to the child which may suffer ever after as result.

Promptly recognizing the liability of such grade of offspring developing defective intellects and convulsive bias of systems, this husband promptly resolved to spare his cherished wife the necessity of further risks to impregnation as security against the possible trials of calamitous motherhood.

It is a striking fact that although human nature does not guarantee exemption from abnormal configuration of unborn children, yet nature does not persist in repetitions of structural defects in offspring. I once knew a man in country location who looked like a monstrosity. He had squat shoulders; his hips seemed hinged to the sides of his pudgy abdomen, his legs swung about in a twisted way, his feet were shriveled, he never touched ground except by sitting pose. When he moved about the locomotion was accomplished by swinging himself between a pair of crutches. But his brain was perfectly normal and bright, he was fairly well educated and especially waggish. He had pursued school teaching for livelihood, but his personelle did not favor repeated engagements for instructing children, and he had then resorted to the making and selling of salves for sores and corns, which he peddled from a cheap one-horse wagon drawn by the skeleton of a horse. When he reined up before a house his "Hello!" was sufficient to attract domestic attention and advertise his errand. As a humorist, among other wonders he claimed that his salve was the most effective remedy in the world; that a man had unexpectedly found out its value in a very serious emergency. His little son had fallen down in the well and was in immediate danger of drowning. The distressed father could not go down to the water as there was no one there to draw him up at once in the well-bucket. But he fortunately remembered the grand drawing qualities of this salve which he had in the house. Quickly spreading a box of the salve over a yard of muslin he fixed it across the opening to the well, and at once this plaster drew the boy up from his danger and he was rescued! There was a youngish maiden woman living in the neighborhood, illiterate but domestic, who conceived a pitying infatuation for the helplessness of this malformed man, went to his little habitation, white-washed its neglected interior, rendered other kindly services—and strangely enough, married him for permanent assistant. By some somersault of proximity she became pregnant, and local community was at once agog to see what her child would look like when born. When it was delivered it was found to be as free from physical deformity as are most infants—and that fearfully misshaped husband was the proudest father in the county.

Allow me to cite another instance, one which sent a chill of suspense down my spine, in a small modest chamber, one cold March night. The occasion was a case of first labor. The woman was of comely face and general figure. Her husband was a young grocer in a small way. He was a thin, angular man of very plain features. He belonged to a political club, and though his wife was at the edge of her first confinement, he had followed the club to the blow-out of an inauguration of one of Pennsylvania's popular governors. Before the labor ended he returned home much the worse for liquor. Being then in the experiment of winning my way into a new practice, I felt peculiarly depressed by my situation. The woman had been toiling with her pains several hours. In changing her posi-

tion and flexing her knees, I reached to take lifting hold of her feet. Behold she seemed to have none. Where her feet should be I grasped a bunch of fleshy deformity—it was my first club-footed case in obstetrics. The old mother-in-law and the inebriated husband almost glared at me in my surprise of unexpected discovery while I broke out in the perspiration of suspense as to what the child would look like when it came. "Doctor, how is it?" the new mother asked when delivered. "A boy and perfectly formed," I said with glad relief. A grateful sigh escaped simultaneously from the three persons present. Nature does not always copy in offspring the pattern of the parent.

In 1866, when practising in an anthracite coal region I attended a young married woman in her first confinement. She was of New England descent, exceptionally intelligent as compared with the women of a colliery settlement in general, was as tidy a little body and pleasant spoken as one would wish to meet in professional life. Her husband was of gentlemanly presence and kindly habit. The woman's labor proved to be rather tedious, but at last brought into my hands a medium-sized monstrosity already deceased. The chagrin of the orderly little woman amounted to real mortification of spirit. "Who could have thought it of us?" she mourned to her sympathetic husband, "all this for worse than nothing! It seems too bad!" There seemed to be no provocation for nature to have so completely deflected from the normal to disastrous deformity. This unfortunate young mother had some literary capacity. At the time of her accouchement episode I was engaged in the publication of a weekly newspaper to which she subsequently contributed a neat article which was promptly accepted and printed.

If bookish education specially qualified women for superior motherhood these latter years, the country would certainly have excelled in the production of intellectual athletes. But there has never been a generation when the aberration of chicanery has so markedly yellow papered the feeble and fevered recruits of moral and business delinquency. How many hopeful mothers who expected brilliant representatives in their offspring have suffered and are suffering the chagrin of having given birth to examples of distorted nerves, perverted minds! If we study the daily press analytically for a week we can see that it is many times more difficult these days to rear children to spheres of physical and moral business probity than was the case forty years ago. The type of offspring that a part of our educated "best society" has been giving birth to for the last generation has put into the world a big defaulting crop of dissipated hearts and nerves, a compromising concourse of capricious even vicious estimates of life's work and conquests. The country is not only exalting the propensities of evil in human nature, it is running to learning-mad, to money-mad, to cupidity-mad. Children of college men and seminary women have developed quickened wits, but not for honest work or worthiness. They choose, rather, the accomplishments of subtle guile, the knavery of drafting for themselves all equivalents needed by others. To make us a substantial race, we need healthy well-developed women, rather than a hyper-nervous product of brain-

scraping class-rooms. It is not probable that the mother of Jackson, of Clay, of Webster, of Lincoln, of Grant, of Garfield, of Gross, of Meigs, of Edison were conspicuous for classical theses or prizes at college commencements. Sterling natural qualities excel in reproduction. The stamina of more substantial stuff than books builds men and women of greater worth for the intrinsic purposes of procreation.

The wife was of larger than average frame, of strong-minded, clear-headed Quaker stock, though a convert to a different faith. Her husband was a stocky, short but handsome man, who filled an important position with a mechanical manufacturing firm. It was the fifth confinement of the wife whose children showed no defects of form or intelligence. There was nothing difficult or unusual in the progress of this labor. The child when delivered was an unsightly creature. The lower jaw and face were much elongated, the occipital bone or back head extended higher than the normal proportion. From this the top head sloped steeply down to the eyebrows, leaving the forehead ominously undeveloped. I knew that such calamitous product of nature could never have reason and should not encumber the earth. To reduce shock to the sensitive mother I instantly decided to conceal as much as possible of this deformity before she should see it. With bandage to retain it, I padded out a little form of forehead, and fastened it to place by surrounding the head completely down to the eyes with the retaining bandage, meanwhile explaining quietly to the mother that the child's head was not properly developed—but no one who might happen to see the child should quite comprehend the real defects. The child was accommodated in the room, but out of the mother's sight. It breathed naturally, and sometimes cried with peculiar wail unhappy to listen to. About the third day I asked the mother if she felt like consoling the infant by putting it to the breast. With the calmness of a settled resignation she replied: "Doctor, I have privately examined that child's head for myself. Since God has willed it so, of course it would be very wicked to try to keep such a hopeless wreck alive. So nothing should be done to prolong its wretchedness. Put on something to dry up my milk." As near as I can now recall, the child expired about the fifth day. She was given a name and the same recorded as though it was an ordinary death in the family. A private funeral was planned. With the unfortunate little body in a neat box which the father carried from the house under his arm, he and myself entered the single carriage that conveyed us to the cemetery. The tender yet emotionless resignation with which that mother relegated the abnormal fruit of her womb to the destiny of its tomb revealed the stern quality of mind that has usually characterized the Quaker constitution. Her chagrin was very keen, but her resolve to rectify the default with death by starvation seemed to me like handing back to the Lord what failed to come perfected from His hands.

Later on I discerned that the husband and wife lived troublesome lives together because of connubial dissensions. But dissolution was forbidden by the edict of their church, and in certain crises better counsel prevailed. I presided at the all-right birth of their next child. As example of the rigidity of cer-

tain natures in discipline, one day while visiting the later babe, then several months of age, during a minute of silence I heard a suggestful out-of-sight rustle near by where I was sitting. I asked the lady if there might not be a mouse disporting in the darkness of the closet. "No," she replied, "it is no mouse! It is Grace locked in there as punishment for running away!" As an agent of rescue for the child, I said: "Oh, I would not do that with my own child. I would not imprison any child in darkness. Possibly the child might learn to hate me; and if you lose the love of your child you have lost your child—a very unhappy result."

"I daresay you are right, doctor," replied the relenting mother, at once unlocking the closet door; "Grace now you can come out." It was her seven-year old daughter, who already looked impenitent and defiant by reason of the estranging spirit of her treatment.

The example of but one more case will be reverted to here. One Sunday before daylight I was hustled to the house of an esteemed pair. They were the parents of three handsome boys at whose births I had presided. I found the wife in acute premature labor. The conditions were such that things to be had to come. In less than an hour my patient was delivered of a seven-months product, scarcely recognizable as human. I wrapped the delivered body up nicely and laid it away in order to give considerate attention to the embarrassed mother. "This thing is dreadful, doctor," she said. "Never mind; don't worry now; you are yet all right, anyway," I replied. When I made my next visit a few hours later the handsome little woman excitedly exclaimed: "Why, doctor, that child is alive! You should hear what a peculiar noise it can make!" "Never mind that!" I repeated; "only keep yourself calm. It cannot live long. And you cannot render it any service—so don't give up to worry!" It expired the following evening and was buried next day without ceremony. Since that deplorable misfit in development I have delivered this lady of as fine a daughter as any mother could be blessed with. As a characteristic of this case, the wife is one of the busiest of housekeepers. Her industry is unremitting, even to toilsome exertion. Her energies are so constantly drawn upon in muscular exercise, the wonder is that she has ever fully matured the development of a child. With the exceptions of a dangerous miscarriage and of the birth of the malformed product, her children, four in number, are perfectly normal in figure, are mentally bright, and take after the mother for activity and pleasant looks and ways. In all the cases that I have cited the expectant mother was a patronizer of the corset counter. It stands to reason that the woman who is girdling her waist with corsets after the third month of pregnancy is encroaching on the needed accommodation for the growing child in utero. Frequently there is a small quantity of fluid in the containing sack, and every pressure from the outside crowds a part of the child against a resisting substance in the woman's form. This resistance acts as a splint against the part of the child presenting at the spot, and therefore natural development may be arrested. It may be the feet that are distorted, but it is more liable to be the head or face or both, because the head more usually dips against the bony rim of the pelvis—especially where the pelvic

capacity is not amply liberal. A bandaged part or splinted part does not grow. It shrinks rather than enlarges. The bandaged feet of Chinese girls result in the deformity of stumps to walk upon. Nature when left to herself, will round out her products with almost no failures, but nature restrained can only present the deformities that result from resistance.

The modern educated woman is sensitive to looks, and is seldom disposed to reveal her condition when enciente so long as she can measurably conceal it from the world's gaze—hence the repression of the corset. I was well acquainted with an interesting young wife, of sensitively nervous type and unusual cultivation. She had "escaped" for five years and then found herself pregnant. She resolved to make the best of the situation temporarily by external repression. She therefore belted in her waist relatively in her usual fashion, especially on her frequent excursions about town or when shopping, till within a fortnight of her "count" for confinement. She had also abstained from eating meats, as she had reasoned that avoiding meats would prevent the child from being large at birth. Her pelvis was narrow, although the woman was above average size and plump in figure. I did not consent to take charge of the anticipated accouchement because of distance from her home. Her labor was so prolonged without delivery that the forceps were resorted to by the attending physician with result that relieved her of the child, but left her so lacerated in uterus and perineum that death resulted on the fourteenth day. On my study of the case I saw that the infant's head, which was found presenting at birth, was so broadened in its bony area and circumference that it could not pass through the pelvic straits without the tear and drag of forceps; but the body was unusually small and poorly fleshed. There was no deformity of head or face except abnormal proportion of breadth and size of skull. The child's scalp, neck and one ear were severely injured by the grip of forceps. It required quite a year of incessant care before the infant seemed to become well in health and begin to thrive. He has proved to be of very excitable temperament, but mentally a good reasoner and unusually bright boy—now past eight years of age. He has never been allowed to apply himself much to school tasks, practically taught himself to read, is a precocious reasoner and gathers knowledge almost by intuition. This child has always seemed a physical demonstration that the narrowed waist-line of the mother by the pressure of the corsets held the developing child's head down upon the hard pelvic rim until the skull became abnormally broadened while the fleshy parts of the body were especially reduced in nutrition. Although the child as a whole was small, the relatively abnormal head so retarded exit through the narrow pelvis that the expedient of forced delivery killed the mother. For if the head had not been so pressed upon from above in the progress of its development at the bottom of its accommodation, it might have taken the longer and narrower form to the vertex, so common at childbirth, and which thereby facilitates natural delivery. The chagrins of such a calamitous case are beyond human computation—a tragedy of all that appeals to love and life.

And now a few words in regard to the later improvement in the forms of the younger women because

of the growing and sensible popularity of the disuse of corsets as essential to dress. As a reasoner, I perceive nothing else that naturally tends to constrain and distort the development of children in utero as do tight bands above the hip line and the compression of corsets. From my early professional days to within the last ten years corsets were sought by every woman who considered herself of account in figure and dress. She depended upon the deforming anomaly of a corset to regulate her shape. The surface vanity of it all suited the commercial instincts of the enterprising manufacturer and retail tradespeople who lost no time in their rivalry to cater to a broadcast disordered fancy. An artificial conception of dress swayed the feminine mind to the extent of almost universal subjection of natural outline and development to the toggery of foisted fashion. Young girls, before growth had time and chance to enrich their physique with the beautiful revelations promoted by the absence of constraining appliances in dress, were early put into corsets which debarred expansion of abdomen and chest, which flattened the bosom and stomach, which reduced the freedom of respiration and heart-action, which diminished the accommodation and capacity for normal wifehood, motherhood, and reproduction—in other words, for the destiny ordained for them by God in their creation.

But doubtless by reason of more enlightened thought and the impelling influence of better example, the younger womanhood of to-day including nearly every developing female youth, repudiates the discomforts and deceptions of the routine corset in their dress. In contemplation of preparing this paper, I have for several months especially observed the prevailing vogue of women's dress. Sixty out of a hundred, including girls nearing legal maturity, have abandoned the corset. They are fostering the filling out of their necks and chests. They no longer prudishly affect to disguise their natural persons with skeleton artifices instead of presenting the beauty of rounded busts. The plumper abdomen is allowed the fullness of nature's design for the functions of normal health of system. Their faces show improved color and the cheer of contentment. Beyond question woman is improving in general physique—at least in Philadelphia. I also note that there are fewer sick-looking infants and more children. Another wholesome sign of the times appeared last week in an elaborate advertisement by a prominent department store: "Three Thousand Corsets of Famous Make at a Loss"—because anticipated sales had fallen that much below commercial calculation.

1726 North Twenty-second Street.

Pilocarpine as an adjuvant against syphilis. W. J. Robinson (*N. Y. Med. Rec.*, June 15, '07) finds this drug an excellent glandular eliminant, on which account it should be valuable in all secondary manifestations. Robinson well observes that glandular elimination is an essential factor in the successful treatment of syphilis. Many cases become intolerant to the extended use of mercury, the body seems supersaturated to the degree that further doses of it are really rather injurious than curative. We should then temporarily discontinue the mercury and in its stead prescribe pilocarpine alone, from 1-32 to 1-8 grain, either in pill or solution, two or three times a day.

TITRATIONS FOR THE GENERAL PRACTITIONER.

BY DR. A. L. BENEDICT,

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THE comparatively exact measurement of acidity is of considerable importance in the management of gastric conditions—indeed many cases treated for hyperchlorhydria are actually injured because the opposite condition exists while, less commonly, acid is poured into a stomach supposed to be the seat of a diminished hydrochloric acid secretion but in which there is a true hyperchlorhydria. Titration is often also of interest, though of less urgent practical necessity, in regard to other excretions and secretions, food adjuvants, etc. So far as the writer can learn, no case arises in physiologic chemistry, in which an acidity of more than twice that of a decinormal solution exists—150 degrees being the highest personally observed in urine or stomach contents or fermenting material—while alkalinity beyond a tenth of a decinormal solution is rarely exceeded.

It may not be amiss to review in plain language just what is meant by decinormal solution, degree and similar terms.

A normal solution contains in each liter as many grams of the ingredient as the number representing its molecular weight providing that in the reaction in question, a single atom or a single group of a compound base like ammonium, is given off or exchanged. Thus for HCl, Na, OH, KOH, etc., we simply add up the atomic weights in the molecule, call them grams, and weigh out so many grams and add distilled water up to 1,000 c. c. If two or more atoms or groups enter into the reaction, we divide the molecular weight by this number. Thus, a normal solution of H_2SO_4 , $Ca(OH)_2$, etc., contains only half as many grams per liter as the molecular weight. H_3PO_4 contains only 1-3 as many grams as the molecular weight. In oxidizing solutions, we calculate according to the number of half-molecules of oxygen available, since one atom of oxygen combines with two of H, K, Na, NH_4 , etc.

A decinormal solution obviously contains just a tenth as much of the ingredient as its molecular weight, with the same proviso for divalent and trivalent combinations.

A liquid which is exactly neutralized by an equivalent amount of a decinormal solution is naturally spoken of as having an acidity of 100 per cent. or 100 degrees. There are two reasons for taking the decinormal solution as the standard rather than the normal solution. In the first place there is no liquid encountered in physiologic chemistry that comes anywhere near the strength of a normal acid or alkaline solution while, as stated, they all conform fairly closely to the decinormal solution. In the second place, a great many chemicals cannot be dissolved in water up to the "normal" standard whereas, if a substance is appreciably soluble, it usually, though not invariably, can be made up in decinormal strength.

Ten c. c. of the substance investigated—investigandum—is a convenient quantity to deal with. For stomach contents, indeed, there is seldom enough so that we could take more as a unit and, at any rate, we could not deal with 100 c. c. units unless there is marked isochymia. On the other hand, if we take much less than 10 c. c., the error in observation becomes considerable, when multiplied to get totals. We often do have

to titrate amounts of 5 c. c. when our error is doubled.

On the other hand, it is scarcely practical to manufacture burettes that read finer than tenths of a c. c. and, although this difficulty can be got around by expert instrument makers and although the mere difficulty in readings could be obviated by magnifying lenses, capillarity or the adhesion between glass and water would considerably affect the delicacy of the titration if finer divisions were attempted. Thus for ordinary chemical work, burettes graduated in tenths of a c. c. are about the limit of delicacy. If 10 c. c. of investigandum are used, each tenth c. c. in the burette represents one per cent. or degree of acidity, alkalinity, etc. Thus, if on account of lack of investigandum, we are forced to use less than 10 c. c., it is better to use 5 c. c. and multiply the result by two or, sometimes in investigating small quantities of gastric filtrate, to use whatever quantity is available and correct our estimate by the rule of three. For instance, suppose we have 7.3 c. c. of gastric filtrate for a test and find that it is neutralized with reference to any one indicator by 5.2 c. c. of decinormal alkali:

7.3 : 10 :: 5.2 (reading in tenths) : x. $x = 71$ per cent. plus

Indicators are substances of basic or acid nature whose ionization phenomena are such that there is a marked difference in color according to whether they are combined to a neutral point or free. For the sake of brevity, I shall omit several pages of interesting facts that I know about indicators, several chapters that competent chemists know, and several volumes that ought to be known before the subject will have been fully explained. Suffice it to say that the neutral points of various indicators vary greatly and that we have no general conception and satisfactory definition of acid and alkali, neutral point, etc.

For practical purposes, we may get along very well with the following indicators: phenolphthalein for measuring total acidity or alkalinity under ordinary conditions; hæmatoxylin for measuring the same when much ammonia is present and, hence, especially in estimating ammonia itself or total nitrogen reduced to this form; dimethyl-amido-azo-benzol, for measuring first free mineral acid and especially hydrochloric acid in stomach contents, and, secondly, vegetable acids, probably acid salts and perhaps some other acid factors met with in stomach contents. We may also mention alizarin—and as two or three different substances are thus known, care should be taken to buy the right one—which is commonly stated to change color when everything except acid combinations of proteid are neutralized in stomach contents. This statement is to be included in the category of important, if true, and it certainly is not true in the absolute sense. It is usually neutralized in stomach contents a few degrees beyond the second color change of dimethyl, sometimes at an intermediate point between the two changes of dimethyl. It certainly does not include the acidity of dihydric phosphates, as can readily be seen by adding it to normal acid urine, when the turning point will be found to have been already passed. Clowes, indeed, has shown that it measures quite accurately the first third of the change from phosphoric acid to a tribasic, alkaline phosphate. Litmus and its modern "improvement" azolitmin, are very unsatisfactory for clinical titration.

A very important point in titrations is to have an accurate burette. The instrument need not be elaborate

nor expensive. For most solutions, the cheap rubber connection to a delivery tip, with a pinch cock, is best. For oxidizing solutions—of which potassium permanganate is the most commonly used—a glass faucet is a necessity, as any organic material decomposes the solution. For acids, the rubber connection must be frequently renewed and a glass faucet is a convenience, though not a necessity if acid solutions are only occasionally employed—and it is astonishing how seldom they are needed by the clinician. Time is saved by having both acid and alkali burettes at hand so that, if an end-point is passed, the opposite solution may be used to correct. Still, with reasonable care, the clinician can avoid overrunning and it is only in titrations for acidity and alkalinity that the error can be thus readily corrected.

For a receptacle for the investigandum, I like neither the porcelain capsule and stirring rod of the clinical laboratory nor the clear glass conic flask of the chemist, held against a white tile, but prefer a rather narrow and deep white cup, which obviates the use of the stirring rod, the mixing being accomplished by rotation, as in the conic flask, and which gives a clearer end point than the flask and tile.

Floats in the burette add to the expense, delay the titration, sometimes stick and cause serious error and are really no more accurate than the measurement made by sighting across the meniscus in a plain burette. Many expert chemists condemn their use, and they are certainly unnecessary in clinical work.

For laboratories in which much work is done, burettes connected with tanks or fixed to stock bottles, so that we can always start from zero, save time, but, for ordinary use, it is no great trouble to start from any line, obtain the reading by subtraction, and refill the burette from a rather small stock bottle as needed. If the burette is filled past the zero mark, it can be emptied sufficiently from below.

Care should be taken to keep the burette clean, to allow time for drainage of the liquid adhering to its wall before making a reading, to diminish evaporation and dust deposit to a minimum by covering it with a test tube, and, after washing with water, to wash with the reagent before refilling, also to be sure that air is expelled from the delivery tip, that concentrated solution in the delivery tip is expelled, and that no drop adheres to the outside before using.

The question arises as to whether the practitioner should prepare his own chemicals. So far as indicators are concerned, the original packages are rather expensive and the quantities so large that they will not be used up in years of ordinary office investigations. If the dry powder can be purchased economically in small quantities, a half to one per cent. alcoholic solution can easily be made—the appropriate strength for most indicators.

While the making of normal and decinormal solutions is perfectly simple in theory, it is obviously impossible to weigh out gaseous hydrochloric acid and a great many soluble solids are deliquescent, so that direct weighing includes a variable amount of water. Then, too, even a skillful chemist, working with the best scales and graduates must make up relatively large quantities of any solution, to avoid a considerable technical error. As a matter of practice, there are comparatively few standard solutions that can be made up

directly. Usually, a few stable non-hygroscopic substances that are used in large amounts, so as to avoid waste and deterioration, are made into standard solutions, large amounts being used to minimize the technical error. With these as a basis, other approximately standard solutions made up in smaller amounts as needed, are tested and corrected. I believe that oxalic acid which crystalizes with a definite amount of water and is almost entirely non-hygroscopic so far as uncombined water is concerned, and which makes a stable solution, of wide applicability, is one of the favorite starting points. With this, alkali solutions are standardized and, from these, in turn, other acid solutions.

Alkali solutions tend to deteriorate by chemic action upon glass, evaporation, absorption of CO₂ from air and various other factors. If kept in dark glass-stoppered bottles, they keep pretty well for some months and, fortunately, usually tend to increased concentration. The deteriorating factors obviously operate much more rapidly in the burette than in the stock bottle, but if the burette is kept covered with a test tube, is in frequent use and is emptied if it is not in use for several days, the error will be inappreciable for clinical work.

If the clinician happens to be engaged on any line of work which requires considerable amounts of certain solutions, economy or lack of accessibility of a source of supply, may render it expedient to make up his own solutions. In such cases, it is well to buy enough of the opposite solution for standardizations. The decinormal alkali solution may be taken as the example of one that the clinician may need in considerable amounts. The easiest way to make it is to dissolve sticks of sodium hydroxid in distilled water—the latter being now easily obtainable in two-liter bottles at a net cost of only about 3c per liter—by guess. Even commercial lye may be used for approximate clinical work. Titrate 10 c.c. of a liter of this against a standard acid solution, using by preference a gallon bottle, which usually is large enough to hold four liters. It will rarely happen that the first solution, made by guess, is lower than decinormal. Usually, it will be several times decinormal strength. If more than 20 c.c. of standard acid solution are required to neutralize, it is easier to dilute to approximately half strength and start fresh with another liter. After a few trials of this sort—usually two or three will be enough—we have 2–3 liters of an alkali solution somewhere between 100 and 150 per cent of decinormal strength. As an illustration, suppose that we have three liters of a strength of 127 per cent., from which 40 c.c. have been removed in the test titrations. While the first few titrations may be made carelessly to save time, the last should be as accurate as possible. We now have the theoretically simple problem of diluting our 3,000, c.c. minus 40 c.c., equals 2,960 c.c., to a volume 1.27 times as great. By this time, it is advisable, though not absolutely necessary, to have the air of the room and the solution at about the same temperature and at the temperature which will ordinarily prevail. Distilled water is now to be added to a volume of about 3,760 c.c. The stock bottle should now be thoroughly shaken and several test titrations should be made to determine its strength. Often it will be found to be just at par, or, at least as nearly so as the eye can determine. The general rule should be followed of titrating to an unmistakable but faint char-

acteristic tint with the indicator most used, in this case phenolphthalein. The personal equation enters into this matter, and, practically, an absolutely accurate decinormal solution—supposing such to be a possibility—which will be read by the eye of the particular investigator as half a degree too low or too high is not as accurate as one which he will read at par in a majority of a series of titrations.

From this point on, strange as it may seem, it is really better to discard mathematics and to standardize by guess. For instance, if the decinormal (?) alkali solution is found to be only 98 or 99 per cent., a few drops of strong alkali may be added and the bottle shaken before making another test. If originally or after this addition, a few degrees too strong, a few c.c. of distilled water may be added, remembering each per cent. requires the addition of about 30–37 c.c. of water. It is not nearly so difficult to complete the standardization as might appear. The bottle should be labeled with the date of the standardization and the stock should be tested and corrected every few weeks. Correction of readings made with a deteriorated—usually slightly too strong—decinormal solution may be made also, by the rule of three, remembering that the proportion is an inverse one, but if the solution gets more than a degree out of par, I prefer to correct it.

Pneumonia in the Northwest Indian Frontier.—The *Journal of Tropical Medicine and Hygiene* (April 1, '07) describes an epidemic at Peshawur, having many characteristics of typhus and exhibiting some aspects of pneumonia. This disease occurs yearly during the "cold season"; it is erroneously called "Frontier pneumonia," for it is met with not only on the frontier of British India, but also throughout the northern portion. It seems to be infectious; and it is of a very virulent type, death supervening oftentimes so rapidly that the pulmonary lesion has not developed beyond intense congestion. Death in these cases seems to be due not to any interference with the respiratory function, but to an intense and rapidly developed toxemia. Nor is this pneumonia confined to the cold weather; though cold may have a predisposing effect the primal causative agency seems to be defective ventilation of sleeping rooms. For example, the native regiments which during the Afghan war were in the winter accommodated in the warm but ill-ventilated barracks in Kabul suffered dreadfully; while those who for lack of room were kept tented on the snow-covered open were comparatively healthy. Again, an ill-considered order to block up the grated openings of an Indian prison barracks resulted not in an improvement, but in an increase of cases; and there were fewer cases when a more sanitary condition was reverted to. No very exhaustive attempt seems to have been made to work out the microbiology of this form of pneumonia. It seems, however, to be due simply to an unusually virulent type of one or another of the various organisms which have from time to time been described as associated with the symptomatology of lung inflammation. After all, the *Journal* well observes, pneumonia is, like dysentery, but a symptom, probably referable to a variety of parasitic agents; possibly "Frontier pneumonia" is as distinct from the type with which the Occident is familiar as microbic is from amebic dysentery.

RECENT ADVANCES IN THE ROENTGEN RAY TREATMENT OF DISEASE.

BY WALTER BERGER, M.D.

THE Roentgen ray has been used in the early diagnosis of pulmonary tuberculosis, thus two German observers, Lehmann and Voorsanger, advise the use of the X-ray as a means of diagnosis in pulmonary tuberculosis. In this diagnosis Williams' diaphragmatic sign; the finding of more or less centrally located affections; haziness of the apex or of the whole lung, which anatomically corresponds to thickening of the lung tissue, and proof of the existence of peribronchial enlarged glands, are four important symptoms in beginning tuberculosis, often escaping clinical detection, and, if discovered by the X-ray, speak almost conclusively for a beginning tuberculous process in the lungs. These authorities present brief notes of a series of cases selected from a varied material, showing that the clinical and the X-ray findings have agreed on the whole, but that in the majority of the cases the X-rays afforded valuable information as to the extent of the lesions which were often more widespread than the ordinary clinical evidences suggested. With the diagnosis in doubt, on account of absence or insufficiency of clinical signs, the X-rays showed a peribronchial or bronchial gland affection, the value of which in prognosis, as well as diagnosis, is of great import. In a few cases, involvement of an apex evident clinically was not recognized by the X-rays, because recent infiltration, though sometimes sufficient to cause clinical signs, may not be sufficiently dense to produce a shadow or haziness on the X-ray plate.

In the use of the Roentgen ray in sarcoma, Judd, in the introduction to his report, says that he believes that all neoplasms of whatever kind and wherever situated, with the possible exception of superficial epithelioma, in which a plastic surgical procedure will not result satisfactorily, should at once be subjected to operation. There are, however, many cases in which, owing to the flat refusal of the patient to submit to operation, to the fact that the tumor is already found inoperable on first examination, and also to the further fact that in certain tumors the cancer, small in itself, requires a grave or disfiguring operation for its removal, the surgeon is compelled to weigh the chances of radiology in effecting a cure. Judd believes that the action of the ray in sarcoma is the same as in carcinoma, but owing to the different reaction of tissue the result is far different; the stimulation in these cases, causes the changing over of the embryonic type of connective tissue into the adult type, a change from preponderant cells to a tumor mostly composed of fibres; the obliterating endarteritis diminishes the amount of the nourishment, and the final result is a fibroma, with possibly latent sarcoma cells included in the mass. Nearly all cases of sarcoma treated by the X-ray recur, and in one of his cases this was even true for the third time. Judd then concludes: "Whether I shall be obliged to go on treating these patients for the rest of their natural lives, or whether they will finally cease to be favorably affected as some of them already have, I have no means of knowing; but at any rate if I can prolong for one or more years in apparent health even a small fraction of these patients, I shall feel that in the X-ray we have a remedy which, the knife proving impossible,

is better than any other so far suggested." A tube as rich in X-rays and poor in cathode rays as possible is used; this means a very high tube, lighted by a current of considerable ampereage, and produced by a coil or static machine of many plates, a small static machine not being effectual in lighting the tube. The distance should be considerable, never nearer than six inches and usually nine or twelve, to prevent the action of the remaining cathode rays upon the skin. Reaction as proved by the diminution in the size of the tumor, is usually slow at first, depending, of course, upon the relative softness of the tumor or preponderance of cell elements.

In a recent issue of the University of Pennsylvania Medical Bulletin, Pancoast has collected the results of treatment of leucæmia, pseudoleucæmia, polycythæmia, splenic anæmia, and pernicious anæmia with the X-rays, both in his own laboratory and as recorded by other observers. One hundred and twenty-three cases of leucæmia are reported in literature and by letter which have been treated with the X-rays. Of these, final reports have been made in sixty-three cases, a little more than fifty one per cent. Of these sixty-three patients, four are living and well; sixteen had a symptomatic cure, then had relapse and died; five had a symptomatic cure, with relapse, but are living, though in a grave condition; eighteen improved, had relapsed, and died of the disease or of an intercurrent affection; sixteen showed no effect or were but slightly improved, and died; four showed a symptomatic cure, had relapse, and were under treatment at the time the paper was written. Only 6.35 per cent. of the patients were alive and well from three to six years after the primary symptomatic cure. Death in these cases is often sudden and due to a toxæmia, which may be directly referable to the action of the therapeutic agent. It must be remembered, furthermore, that intercurrent diseases are frequently the cause of spontaneous improvement as well as of death both in leucæmia and in pseudoleucæmia. In view of the high death-rate, the frequency of relapse, and the results of experimental research, particularly those published by Edsall, the X-rays cannot be regarded as a specific therapeutic agent in either variety of leucæmia. The true cause of the disease is not destroyed and sooner or later a relapse is to be expected. The theory that the destruction of the leucocytes and abnormal deposits of lymphoid tissue are due to stimulation of an autolytic process, through some action of the X-rays, seems to have been well demonstrated.

There are forty-four cases of pseudoleucæmia reported by Pancoast; the final outcome being known in twenty-nine, sixty-six per cent. are alive and well; three or four years after the first symptomatic cure, 65.5 per cent. are dead or will soon die; and 6.9 per cent. are still under treatment. In typical cases of pseudoleucæmia there is no evidence of an excessive tissue destruction at any time during the treatment, although three patients have died as a result of toxæmia induced by the treatment. The X-rays are not a specific therapeutic agent in this disease but the results are much better than they are in leucæmia. By improvement in the technique and after a better understanding of the pathology of the disease still more favorable results may be secured.

Four cases of polycythæmia, twelve of splenic

anæmia, and five of pernicious anæmia have been treated with the X-rays. One of the patients suffering from pernicious anæmia, who had toxæmia before the X-ray application, was seized with alarming symptoms after a single exposure of four minutes, and died three weeks later. In such serious diseases as pernicious anæmia, pneumonia, typhoid fever, acute nephritis, pyæmia, leucæmia, and pseudoleucæmia, X-ray treatment should not be given, and skiagraphic or fluoroscopic examinations should not be made without coincident metabolic studies. Complete studies of metabolism are not always possible, but a careful, simple urine analysis, combined with the estimation of uric acid, will be sufficient to indicate danger. The estimation of the uric acid is suggested because it is easy to accomplish. The danger signals would be evidence of nephritis in the simple urine analysis before the application of the X-rays, and a diminution in the output of uric acid, determined by an examination of a twenty-four hour specimen, after the exposure.

Studying the influence of the X-rays on the ovaries and pregnant uterus of guinea pigs, Lengfellner has demonstrated that prolonged exposure to the X-rays is fatal to the fetus of a guinea pig a few days before it should be born, and that short exposures have a distinct influence on its vitality. Changes were produced in the ovaries of the female guinea pigs, not only in those which were pregnant, but also in those which were not. From these facts Lengfellner deduces the proposition that a pregnant woman runs a great danger of destroying the life of her child when she is exposed to the X-rays either once for a long time, repeatedly during short sittings, and that a woman who is not pregnant runs a similar danger of being rendered sterile either temporarily or permanently.

In using the Roentgen rays for menorrhagia, Görl considers the effect of the Röntgen ray upon uterine myomata which cause excessive menorrhagia. In a patient of his, forty years of age, who was subject to large losses of blood at each menstrual period, it was found that she had myomata of the uterus, and was also a "bleeder" so that treated operative intervention was out of the question. She was treated with the Roentgen rays, four to five times weekly for four weeks, with a most satisfactory result. The author considers that symptoms of the menopause induced by the rays offer no objection to a case of this kind, since surgical measures would also produce this condition.

In cervical tuberculosis adenitis, the value of Roentgen ray treatment in tuberculosis glands of the neck is summarized by Feldstein as follows: 1. They could be treated by the Roentgen ray when no softening or caseation has taken place. 2. Softened or caseous glands should be referred to the surgeon, and ought not to have Roentgen ray treatment. 3. Postoperative Roentgen ray treatment is important if there is any doubt of remaining glands which might be infected. 4. The Roentgen ray should be used for cosmetic reasons. 5. The size of the gland or glands does not influence the successful result of the treatment.

For protection against Roentgen ray injury, Krause has studied the literature on the subject of the effect of the Roentgen rays on the internal organs extensively, and describes the protecting measures in use at von Strumpell's clinic at Breslau. The individual operating the Roentgen apparatus stands in a wooden cabinet, 186 cm. tall, 126 cm. long, and 106 cm. wide,

coated on the outside with thick sheets of lead covered with waxed cloth to prevent contact with the lead. The tubes are inspected through two small windows of lead glass, 6 x 8 cm. The cabinet has room for the interrupter and condenser, etc., and for a chair. The box with the diaphragm is lined with lead, and for nearly three years a very large one has been used, 52 x 54 x 95 cm., which holds the largest sized tubes. The diaphragm box can be easily raised or lowered, and an observation window of lead glass at the back has a shutter to cover it; this box not only protects against injury from the rays, but it insures complete darkness for the ray illumination. The examiner wears an ulster and mittens made of lead-impregnated rubber stuff, and goggles of lead glass, or the fluorescent screen is covered with a sheet of lead glass. Lead aprons to protect the genital organs are recommended, but are seldom used. The patient is protected with two sheets of lead foil sewed into waxed cloth or washable rubber cloth. Pigmentation of the exposed skin has been prevented in his experience by interposition of a shirt, or a piece of thin parchment or silk paper. In order to prevent lead intoxication he is careful to see that everything containing lead is scrupulously covered with impermeable material, waxed cloth or the like. The German law holds the chief responsible for injury sustained by his assistant or subordinates in Roentgen work as well as by the patient, so that the operator is exceptionally careful.

As to results in Roentgen therapy, C. L. Leonard states that one result clearly demonstrated of Roentgen treatment is the conversion of the lymphatic channels into solid cords. This destruction of the lymphatics means the isolation of the foci of disease, the destruction of the paths through which metastasis or the spread of the disease could take place. Palliative value should not be overlooked either. He finds that malignant disease too frequently comes for treatment too late, or incomplete operation results in recurrence. In fact, cures by whatever means are only too rare. The value of a method which certainly retards the progress of the disease, prevents external ulceration, and relieves pain is positive. To patients suffering from inoperable malignant disease this agent should be ignored.

On the other hand, the famous English surgeon Owen is rather adverse to the X-ray. In his recent Bradshaw lecture he says:

"I shall begin my remarks with the absolute statement in the present state of medical and surgical knowledge and experience the only way in which the cure of a cancer can be obtained is by its prompt and thorough removal by operation. When the surgeon has made up his mind that a growth is malignant, and that it can and ought to be removed, he should lose no time." Owen solemnly warns against the wasting of precious days and weeks by recourse to electricity, X-rays, or other methods suggested because of the patient's terror of the knife. He finds that many people suffering from cancer delay radical treatment because of the misleading popular scientific articles in the daily papers in response to the wide demand for reading of this kind; these articles being some of them written for advertising purposes; more often they are dictated by an irresponsible optimism unchecked by real knowledge, and suggest for a new treatment prospects of cure which are absolutely

unjustified by clinical experience. As to the treatment of mammary cancer Owen states that he cannot believe it necessary to remove the thoracic part of the pectoralis major as a routine practice when the breast shows no attachment to it. In this matter he differs from the majority of modern surgeons. Cancer of the lip should always be accompanied by opening up of the submaxillary region and taking away the glands, since the latter contain epithelial growths almost as surely as do the labial sore, and if left it is but a question of time when they will involve the neck in malignant ulceration. The simple operation of a wedge from the lip is now happily a thing of the past.

Hay Fever.—A year ago we reviewed a valuable paper of Knight on this subject; another timely contribution by H. H. Curtis appears in the *J. A. M. A.* (July 13, '07): Hay fever is a disorder amenable to no specific treatment. The number of cases of hyperesthetic rhinitis from other causes than ragweed and other pollens is about one-third of the total number. About one-third of the cases supposed to be due to pollen reaction may be relieved by constitutional and surgical treatment. Predisposition to attack in these cases being due to definite causes it is likely that induced innervation of the sympathetic is an important etiological factor. Primary intoxications may take place from pollen toxins in cases where the sympathetic system is apparently not previously enervated. These cases should theoretically react to antitoxin treatment. The present-day consensus of opinion is against the claims made for pollantin, though observers who have been personally instructed by Dr. Dunbar give unqualified endorsement to the great benefit to be derived from the treatment. The suprarenal capsule products hold the first place in the medical treatment of hyperesthetic rhinitis. Constitutional treatment as an adjunct to any local application is of supreme importance. The climatic is the best of all therapy yet discovered, with previous attention to nasal conditions.

Animals Heal Themselves.—No respectable sheet should in these days be lacking in observations on this subject; the following, for which we are indebted to the *Providence Journal*, are therefore submitted: Animals are good amateur doctors, though admittedly they cannot compete with professional practitioners. For instance, the elephant, when wounded, goes straightway into the water and bathes there so long as his fever lasts, standing for many hours in the stream and squirting with his trunk the cooling water over his head and back. "It is pathetic to see him at this work; he is so patient over it, and all the while he heaves such deep, sad sighs." And when he has a nasty open cut he plasters it up neatly with mud. Dogs and cats, when they are ill know the medicine they need; the former will eat speargrass, and the latter will appropriately enough dose themselves with valerian, maxum and catmint. All animals like to visit the salt licks at certain seasons; these are not licks of rock salt but of medicinal salts, such as we frequently take ourselves. There have even been stories of bird surgeons—birds that have set their broken legs and tied them up with string. But these, we fear, are the fabrications of nature fakirs. The others, however, our much esteemed exchange declares, are gospel truth.

Mind and Body.—The *J. A. M. A.* quotes Alexander Bain: "Instead of supposing that mind is something indefinite, elastic, inexhaustible, a sort of perpetual motion or magician's bottle, all expenditure and no supply, we now find that every single throb of pleasure, every smart of pain, every purpose, thought, argument, imagination, must have its fixed quota of oxygen, carbon and other materials combined and transformed in certain physical organs. And as the possible transformation in each person's framework is limited in amount, the forces resulting can not be directed to one purpose without being lost for other purposes. All this is true—but only to a measurable degree; it does not by any means state the whole matter. A Napoleon will generally ingest a quantity of oxygen, carbon and other material elements less in amount than the man with the hoe will consume; yet millions of the latter are oftentimes but food for powder in the hands of an individual of the Napoleonic type.

A case of thymic asthma is reported by C. Jackson (*J. A. M. A.* May 25, '07), who was able to see through the tracheoscope that this tube was compressed from before backward in a way to interfere with respiration. It would seem that Jackson's observation is the first recorded. Many have denied the possibility of its occurrence, though no explanation has been forthcoming for cases of sudden death in children with symptoms of respiratory obstruction in which post mortem examination revealed nothing else than an enlarged thymus. When the tracheoscope was withdrawn from the tracheotomy opening the child could not breathe, and for a month respiration was possible only through a long tracheal canula which passed down nearly to the bifurcation. The thymus, enlarged in this case, as Jackson was able to show by a photograph, was finally removed by means of a transverse incision above the sternum, through which the finger was passed down into the mediastinum, the child being etherized through the tracheal canula, without which the operation could not have been done. This instrument was removed on the eighth day. There was never any stridor whatever after the operation; and three months later the boy was in good health.

Modern Instruments Used in the Estimation of Hemoglobin Content.—T. W. Hastings (*J. A. M. A.*, May 25, '07), considers the Fleisch-Miescher instrument the most reliable. Sahli's instrument is preferable in theory and the most reliable when the solution with which it is filled is properly standardized; but in many instruments obtained at retail the solution is not correct. Dare's instrument gave excellent results except in cyanotic or plethoric patients. Hastings condemns the Tallquist scale as worthless for quantitative results.

Blindness from a Large Dose of Quinine.—The *St. Louis Medical Review* reports that a patient of Dr. H. W. Woodruff had thirteen months previously received 195 grains of quinine in four days. Total blindness of sudden onset lasted four days, then vision gradually returned, and has become 20-60 and 20-40, although there is a marked atrophy of the nerve heads, with typical concentric contraction of the fields.

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PHILANTHROPY.

IN a broad discussion of philanthropy, it must be assumed that the donor or testator is not too much influenced by the desire to establish a memorial to himself or some one else; that he is sane enough to avoid a whimsical limitation of his gift to useless or relative inadequate ends; but that he is actuated by a genuine desire to be helpful to society and to allow society to get the largest return from his gift. While, in the individual instance it is at least in bad taste to "look a gift horse in the mouth," a public benefaction is really a restoration to the community of what has been derived from it and it is no impertinence to point out that foolish gifts are essentially a perversion of public rights. It is even possible to lay down certain general principles which should govern philanthropy.

1. Persons of small means should, as a rule, after allowance for generosity in certain standard directions, such as their own church and societies appealing especially to them, limit their giving, before and after death, largely to personal acquaintances. The average man of small means, who has provided comfortably for his family, who has been generous to humbler friends and who has been reasonably hospitable, may well feel that he has done his duty. It would be unwise for him to bequeath any of his small savings to public institutions, unless he is singularly free from family obligations. It must not be forgotten that there is a class in every community that is deserving but that lacks the peculiar kind of intelligence necessary to success or that is unduly hampered by physical weakness, imperfect education or excessive burdens. This class needs, not so much perfunctory charity, as the personal friendship of some one, not necessarily rich, but able to advise, to assist with loans and, occasionally, to "help along" in a way that a stranger or institution could not, without causing loss of self-respect and the

danger of permanent pauperization. Thus, the absence of blood relations does not remove the possibility of individual charity by gift or legacy.

2. Gifts and legacies of small amount, should, as a rule, be made to some definite cause, to be used outright, unless it is possible to secure enough to aggregate a sum sufficient to establish an endowment. To set aside a few hundred dollars at interest, under trustees, is economically unwise.

3. Large gifts and bequests, on the contrary, are best used in establishing capital, only the interest on which shall be used.

4. While the donor or testator may very properly stipulate the purpose to which such an endowment shall be applied, due allowance should be made for changes in conditions of social life, and in the needs of society. For example, there are many benefices and trust funds in England which are practically wasted, the former furnishing sinecures for persons not in the least needing or deserving support, and some of the latter being devoted to the distribution of cakes or similar trivial gifts, which are useless and ridiculous under present conditions.

It is perfectly conceivable that interest rates or even the possibility of interest-bearing investments may gradually diminish so that, ultimately, only the capital will be of service.

It should also be remembered by testators that many special objects, particularly along scientific lines, cannot be made the basis of indefinite expenditure, unless we virtually acknowledge that the object is unattainable, and therefore, not properly one for philanthropy. For example, cancer research or, indeed, research along any similar scientific line should, ultimately, reach a termination. Again, even if the object remains, its relative importance may become insignificant. For instance, imagine that some eighteenth century Rockefeller had bequeathed an enormous sum for smallpox hospitals. Since the establishment of public vaccination, the need of such institutions has been reduced to a minute fraction of what might have been foreseen, even by the most sanguine. A similar illustration might be drawn for typhus, cholera, etc., and with municipal control of water supplies, for typhoid also. Indeed, it is reasonable to expect that within a hundred years or so, most of the infectious diseases will have been controlled, some by prophylaxis, along sanitary lines, others by some analogue of vaccination, others by abortive treatment, to such a degree that they will cease to be considerable factors for evil.

Indeed, without prophesying the millennium, it is a wise optimism to believe that none of the present great evils toward which wholesale philanthropy is directed, need be considered permanent. But, on the other hand, it is altogether likely that equally great

needs, not at present foreseen or perhaps even regarded as inevitable limitations of human happiness, may require attention.

5. Unless there are special reasons to the contrary, it is better to extend the usefulness of existing institutions than to establish new ones. Excepting the growth of new communities, this is especially true of colleges of various kinds, hospitals, etc. The economic value of concentration and centralization should be recognized in philanthropy as well as in business. Unless a considerable population requires ready access to such institutions, even the establishment of a fund to pay for transportation, might be better and cheaper than the endowment of a new institution.

6. No essentially philanthropic institution should be so heavily endowed as to allow waste or even extravagance, nor so as to render it independent of current support. A happy mean should be chosen between a degree of poverty which produces undue anxiety and crippling of energy and a degree of wealth which tempts to graft or even a sense of independence of popular approval. Moreover, while the community may properly accept aid for its dependent classes and assistance toward objects of public utility and culture, it is itself pauperized if it accepts hospitals, libraries, art galleries, colleges or churches, which are entirely self-maintaining. The habit of giving and the need of continued support of such institutions are matters of popular education.

7. Every prospective giver should acquaint himself with the actual needs of the particular community at the present time. Allowing for individual bias of mind, the most worthy and most needful objects should be chosen. For example, it may well be questioned whether it is necessary to cater to individual whims as to minor points in theology by maintaining numerous church edifices where small congregations may worship in almost unanimous agreement as to doctrinal points which scarcely the most bigoted consider essential. Similarly, it may be questioned whether a magnificent church edifice in a fashionable neighborhood is so urgently needed as the relief of actual want and gross immorality. Eighteen young men in every thousand are now receiving full collegiate education. Does the community require this average, or, indeed, can it afford to spare so many from the humbler but necessary tasks for which such a degree of schooling is entirely a luxury? Is it a wise plan to place the youth of our land in educational institutions housed in palaces and with every wish for luxury or sport gratified?

When there is a place for every sick or injured pauper and when it is no uncommon matter for rival ambulances to quarrel over a prospective case, do we really need additional hospital facilities? Cannot aseptic

and successful operations be done in simply and cheaply constructed clinics as well as in elaborate marble vaults?

8. In extension of the foregoing principle, it may be pointed out that there are numerous objects of indirect benefit to society in which the element of time is important. The prompt solution of many scientific problems which are beyond the means of existing institutions, would greatly expedite scientific research for the future. Some of these problems are of no immediate humanitarian importance but still are proper objects of philanthropy in the broad sense. Others, for example, the discovery of causes of cancer, of scarlet fever, etc., or of means of combating disease, are not only strictly humanitarian, but it is even possible to reckon quite accurately the number of lives and the pecuniary value which can be saved to the community by each month by which the date of the discovery can be hastened. The preservation of historic and archaeological antiquities and of natural objects of interest and beauty may properly be included in the educational branch of philanthropy; and in many instances it is not a question whether the needed expense should be incurred now or later but whether it should be incurred at all or the opportunity forever lost.

9. In the writer's opinion, philanthropists have too much neglected a class of the community which deserves consideration. Allusion is made to those not left orphans at an early age, not handicapped by blindness, deafness, deformity, etc., not actually suffering for want of clothing, fuel, or food, not seized with sickness or suddenly disabled without resources to pay for medical care, not criminal nor requiring reformation, not so young as to be suitable candidates for a scholastic education, nor so old as to be incapacitated for self-support, not insane—in short not requiring any of the emergent aids of philanthropy. This class is a very large one; it includes the great mass of struggling, hard working, anxious humanity. It is obviously impossible to place every one in the leisure class or to do away with the ancient curse—or blessing?—that man should earn his living by the sweat of his brow. The ordinary forms of charity could not be extended to this class and they would be indignantly refused if so extended. And yet it is pertinent to inquire if something could not and should not be done to help just this class.

Does not the blessing invoked on the man who can make two blades of grass grow where one grew before, mean, when translated into terms of modern life, that it is worth while for well disposed rich men to seek out industries involving the necessities and comforts of the great mass of mankind and by conscientious exercise of the power of wealth, to conduct such industries on the basis of a reasonable, small return on cap-

ital actually invested, so that two street car rides may be had instead of one, so that two telephone messages or telegrams can be sent instead of one, so that two yards of cloth or carpet may be bought for the price of one?

Every accumulation of large fortune represents a tax, by the individual upon the community and this tax must, eventually, with more or less loss and more or less delay, be returned to the community. It must not be forgotten that the very word used—tax—also implies the ultimate wisdom and right of such accumulation subject to self-evident qualifications. But, just as an extravagant public building or highly-paid political sinecure suggests to the citizen that it might have been better to forego the outlay and remit a part of the public tax, so the means by which private fortunes are made sometimes suggest that the ultimate return to society is not of as great value to the community as a lessening of the accumulation. This is conspicuously so when a large gift or bequest has been made by a man who has employed large numbers of his kind at low wages. It should not, by any means be forgotten that labor has gradations of value, just as truly as commodities of different grades nor that an undue increase of wages must inevitably mean an interference with the adjustment of society and a gradual readjustment with compensating increase of prices, until the actual purchasing power of the wages is restored to the original level. But no wage is adequate which does not enable the earner to enjoy a decent livelihood and it is disgracefully inadequate when women, by the thousand, are tempted to eke it out by dishonorable means.

A time-honored but now neglected means of benefiting the community which has fallen into neglect, is the private legacy. While not so alluring as the establishment of a memorial institution of one kind or another, or a wholesale gift to the community, and while fraught with certain dangers, the private legacy is really a legitimate and satisfactory way of restoring to the community an unnecessarily large accumulation of wealth. Even large fortunes can, with no great degree of study and forethought, be devoted to such a purpose. One hundred thousand dollars is the maximum amount needed as capital to support a whole family indefinitely (under existing rates of interest) in a sufficiently comfortable manner. As little as ten dollars may suffice to lift a deserving but unfortunate individual out of a temporary difficulty. Unless the circumstances are peculiar, it is possible for any individual to come into close personal relations and to understand the needs, possibilities and weak points, of at least a hundred families or individuals. It is worth considering by any rich man in making his will whether he could not devote some hundreds of thousands of dol-

lars to increasing the prosperity of a hundred families, and whether the aggregate prosperity of the community would not be materially elevated by such a distribution. For example, would it not, in the long run, effect as much for society as the establishment of a library where one was not urgently needed, or the further temptation of young men to educate themselves for professions already overcrowded, or the establishment of more hospital accommodations than are needed by the defective and dependent classes? Obviously, not every one of the recipients would make generous or even selfishly wise use of an unexpected legacy, but, even so, the ill-spent excess would rapidly enter circulation and the ill-hoarded addition would be delayed but a comparatively few years and in comparatively small amount, before it would be an asset of the community at large.

THE READING LIGHT.

THE successful physician is ever a student; throughout his professional life he must never cease to be a learner, casting aside and forgetting methods of practice not so good and substituting for them whatever he finds in medical books and journals to be of greater therapeutic value. And in his leisure hours—especially in the evenings—the reading of light literature should in the end remain one of the most delightful of recreations. Perhaps also the physician may feel inclined at such times to put pen to paper after the manner of our knighted colleague Conan Doyle, who has produced under these circumstances such delightful pages as are to be found in his book, "Under the Red Lamp."

The physician's reading light is, then, a matter deserving attention. There are three ways of obtaining a good light. One is to illuminate the whole room so brightly that reading is easy in any part of it. This is usually undesirable, because in the first place the eye is likely to tire more quickly in a room so brightly lit in all corners than it would be if it could be rested by looking occasionally from the lighter to the darker parts of the room; and because the cost of lighting a room thus brilliantly is great. Another way is to have a lamp placed near the reader, fitted with a globe or reflector which will concentrate nearly all the light on the printed page; by this method, however, the reading lamp is likely to be of little value in the general lighting of the room, and other lights will have to be added if the greater part of the room is not to be in comparative darkness. A third method—and an excellent one—is usually preferable where the greatest economy is essential; this is to use the same light both for reading and for the general lighting of the room by equipping the reading light with a globe

or reflector which will concentrate a considerable portion of its light within the reading area, at the same time allowing enough light to radiate in all directions so that the rest of the room may be properly illuminated.

We beg here, Mephistopheles-like, to suggest a most satisfying form of dissipation, a form which leaves behind no headache nor any other form of regret. This is, to have an electric bulb arranged at the head of one's bed, so that the rays will fall over one or the other shoulder. The mellow light through the ground glass bulb, the mild cigar, the peace and stillness of the bedtime hour, the soft pillow, the fine large print of the luxurious volume, the friendly hand which Plutarch or Montaigne or Shakespeare extends across the centuries—where is there, in the whole span of life, such ineffable gratification as this?

THE CAUSE OF DEATH.

TO dissipate the inordinate fear of sudden death which patients frequently manifest when they consult us concerning "a pain around the heart" is one of the most grateful phases of practice. The emotion of fear in itself affects the cardiac cycle so that by this means alone tumultuous and irregular beats and precordial pain and distress are induced.

This fear of death from heart disease is certainly fostered by lay press accounts which one finds daily, and perhaps several times in one issue. The diagnosis in the event of a sudden death on the public thoroughfares is often made by an astute policeman. That the unfortunate man died of heart failure is a conclusion quite satisfactory to the lay reader; and latter's psychism with the result that the worry-ex-lay reader's nerves with the result that the worry exhibits itself reflexly in precordial uneasiness. It were quite as scientific to state that one dies of failure of respiration; every creature's death comes about ultimately with the cessation of one or the other or of both of these phenomena. Thus the average citizen has come to fear, whenever he goes to bed with a sensation to the left of the sternum, that—to use a hibernicism—he will wake up in the morning to find himself dead.

Another frequent factor in inducing symptoms which the patient believes to be due to a disease of his heart, is gastric pyrrhosis and flatulence. The distended stomach, with little else than the thin diaphragm to separate it from the heart, presses upon the latter organ so that the uneasiness results which is referred to it. Nor would we by any means hold lightly that valvular disease is not attended with danger to life; yet we know that most of those who suf-

fer thus live many months, and that their comparatively slow demise is due to some such concomitant factor as a kidney lesion or to the pressure effects of a dropsy. Yet we would observe here parenthetically that there are heart lesions which may result in sudden death; these are the fatty heart, and the myocarditis and the cardiac dilation consequent upon the infectious diseases and upon prolonged exhaustion. Here the matter is not to be considered lightly. Except in these conditions, however, sudden death is not to be apprehended as due to the heart; and in corroboration of this view the *Journal of the American Medical Association* sets forth some valuable data.* Stokes half a century ago protested against the popular conception that sudden death is very common in heart disease; even so the termination is as a rule only after abundant warning. Gibson, of Edinburgh, has recently emphasized Stokes' expressions. And with these two English authorities Brouardel, of Paris, is in striking agreement; and finds, for his part, that death is especially apt to be brought about by the kidneys; and next to this apoplexy is responsible. "This would leave heart disease to occupy only the third place." Nevertheless "from a prophylactic viewpoint it will be found that the measures best calculated to avoid sudden death from kidney disease will be essentially the same as those calculated to secure the integrity of the heart. Among them the most important are the avoidance of sources of poisoning either from without or from within, the avoidance of alcohol, tobacco, too large an amount of meat, and the prevention of autointoxication of all kinds."

AN IMPORTANT MILK CLASSIFICATION.

THERE has during many months past been much groping about with regard to what manner of milk is suitable for human food. Any succinct and authoritative statement is certainly welcome and most important. And such an one is supplied in the report of the Washington Milk Conference,¹ which contains the adopted recommendations of Chief A. D. Melvin. And it is hoped by President Roosevelt and others deeply interested that the provisions set forth in this report may serve, as far as possible, for all American cities. These recommendations classify milk in three ways:

First: There is certified milk, which it seems agreed the poorer people cannot afford to buy. This milk corresponds to that certified by our own county medical society. It is limited to dairies subject to an elaborate system of inspection and frequent analyses, and

* August 3, 1907.

¹ Circular 114 of the Bureau of Animal Industry.

in which most scrupulous cleanliness is exercised. Such milk should not contain more than 10,000 bacteria to the cubic centimeter, and should not be more than twelve hours old when delivered.

Secondly there is inspected milk in which when raw the bacteria should not exceed 100,000 at any time in the year, as determined by inspections of the Health Department; and the milk must be delivered to the consumer in sterilized containers at a temperature not above fifty degrees F. The housing, feeding and milking of cows producing such milk, and the dairies in which it is produced are under careful surveillance.

The third class is pasteurized milk, which is made up from the bulk of the supply. It must be kept at a temperature below sixty degrees F. until delivered at the "clarifying" and pasteurizing plant. It is milk of "unknown" origin—officially, that is to say—but dairies supplying it must have the authority of a veterinarian that the cows are not diseased and the milk (in which term is to be included milk and cream) must be "of good composition, free from adulterants and artificial coloring matter."

Special permits for each of these three grades are issued to dairy farms supplying the city of Washington. We have consistently been of the opinion that the milk problem is not by any means to be solved by wholesale pasteurization. Nevertheless we agree with Dr. M. J. Rosenau, Director of our National Hygienic Laboratory, who states: "The advantages so far outweigh the disadvantages that I unhesitatingly recommend compulsory pasteurization of all milk not certified under classes one and two of Dr. Melvin's classification."

NEGRO PHYSICIANS.

ONE at least among our many perplexing and oftentimes serious negro questions seems to be in process of solution in a most gratifying and satisfactory way. There recently met in Baltimore the National Association of Negro Physicians, Dentists and Pharmacists; and it then became known that there are in these United States some two thousand colored men practising medicine and its allied professions, about three hundred of whom are members of this association, concerning which, we most ardently hope, that it will constantly grow in strength and in wholesome influence. There is no greater need for such work as these negro colleagues of ours can do among their own people; the medical tasks which confront them are indeed Herculean. For never, perhaps, has there been a race so grievously afflicted with tuberculosis, cocaineism, the venereal diseases and like decimators of mankind.

Among the physicians who took part in the Balti-

more session, every one holds a degree from some reputable college, and has met the same tests which white men have to meet. They proved, states the *Evening Post*, the most interesting professional group to be found among colored men. "In personal bearing, in general culture, in professional knowledge and equipment they represented a body of men that maketh not ashamed." It developed at the first day's session that there are local associations which are federated in the national body in almost every State and large city. The missionary function of the negro physician in disseminating health, knowledge and sanitary intelligence was clearly evidenced; as one speaker put it nobly: "The fee represents but a small part of the work; our chief labor is the physical building up and betterment of the people." And to quote another: "Medicine is the most unselfish of all the professions, in that it prepares people to do without its dispensation." It is gratifying, moreover, to learn of the kindly fraternal spirit existing between white and colored physicians in all parts of the country; and that the white physician never refuses to extend to his colored co-laborer the fullest professional sympathy and courtesy.

REFERENCES IN MEDICAL LITERATURE.

FOR some years, we have been making a study along certain lines which have required the collection of references from medical literature. As the result of experience, we would make the following suggestions to authors, editors and others:

1. Authors should settle upon the form in which they wish their name to appear and should always write it in the same way. By some natural perversity, men with very common surnames are apt to use a single initial and men with unique surnames and three or four lengthy Christian names, to use them all. The full name, or the one selected by the author, should be used by editors and reviewers, to prevent confusion.
2. To make the identity more exact and to facilitate correspondence, which is often desirable after reading an abstract, the addresses should also be given in all reviews.
3. While there is no objection to abbreviating the names of well known periodicals, they should be given sufficiently full to avoid confusion and, unless very well known, the city of publication should be added.
4. On the whole, the exact date of publication is more convenient for reference, than volume and page numbers. The former also gives at a glance, the probable availability of an article, as being old or recent. Page numbers should be used in addition for abstracts, society proceedings, and other articles not listed as original in a prominent place.

5. The publication of a full list of contents on the outside cover or, if the journal is bound like a literary magazine, just before the text, facilitates reference. A table of contents buried in advertising pages is a nuisance. If there is not room for a resume of original articles in the table of contents without crowding over minor articles, it is, on the whole, better to omit the resumes.

6. The utmost care should be taken to get names and statements correct. One journal, now out of existence, has been so careless in its reviews that it has sometimes been impossible to get the gist of the article without looking up the original.

7. Society proceedings, special journals and bound books, are often the graveyards of living matter. Authors should not only be allowed but encouraged to publish articles having this destiny in some circulating medium.

8. So far as possible, distinctly original and statistical articles or reports of rare cases should be published in appropriate journals, as determined by a study of their past precedents. Otherwise, they are likely to be overlooked.

9. Authors reporting rare cases will expedite the study by appending a bibliography and by making a resume or tabulation of similar cases so far as known, designating previous reporters' names, so as to prevent duplication in other compilations.

10. Magazines making a special point of reviews facilitate study by collecting groups of articles on allied subjects.

11. In compiling statistics, precedents should be followed so far as possible, so that further compilations can be readily added. When each author adopts a different system, much confusion results and much material is sacrificed.

12. Bibliographies in which brief abstracts of the articles cited are given are especially valuable.

13. It is to be hoped that the A. M. A. or the Government services will establish a bureau of medical statistics, freely accessible to any student who may wish to study any particular question.

Indigestibility an Advantage.—The lay press informs us of a Detroit lady who inadvertently swallowed a hat-pin while dressing for an automobile ride; we learn with gratification at the same time that her condition is no longer critical. The doctor "located the pin, and it was concluded that an operation would not be necessary. The pin is near the appendix, and if it passes that point safely the patient will soon recover, otherwise an operation will be necessary. The patient is swallowing no liquid, and is sustained by potatoes alone. The potato forms a mass around the pin and is carrying it from her body. We have watched with the X-ray the potato food as it went through the various organs, tracing its progress inch by inch."

BIBLIOGRAPHICAL

A Text-Book of Physiology for Medical Students and Physicians. By William H. Howell, Ph.D., M.D., LL.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Second Edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1907. Octavo, pp. 939. Price \$4.00.

In revising his book for a second edition, the author has brought his text to date, without increasing the bulk, an important desideratum, especially in a text-book of this class.

We know of no work which justly stands higher as a hand-book with students and practitioners, both on account of the practical and extensive experience of the author as a teacher in a great university, and the practical conciseness of his classically illustrated text.

We have no hesitation in unqualifiedly commending this book to our readers.

Physicians' Manual of the Pharmacopeia and the National Formulary. An Epitome of all the Articles Contained in the U. S. P. VIII., and the National Formulary. By C. S. N. Hallberg, Ph.G., M.D., Professor of Pharmacy, University of Illinois; Member of Committee on Revision of the U. S. P. and of the Committee on the National Formulary; and J. H. Salisbury, A.M., M.D., Assistant Professor of Medicine, Rush Medical College, Chicago. American Medical Association, 1907. 16mo, pp. 198. Price, 50 cents.

This little book includes the names and brief descriptions of all articles that appear in both the U. S. P. and the National Formulary, with a therapeutic index and a list of common names of articles, all of which will be of great service to practitioners.

The line which separates Pharmacopeial articles from those in the National Formulary, is in many cases an arbitrary one, and a hand-book which covers the two series, will be found of value.

The book will be required for constant reference.

Five Hundred Surgical Suggestions. Practical Brevities in Surgical Diagnosis and Treatment. By Walter M. Brickner, B.S., M.D., Chief of Surgical Department, Mount Sinai Hospital Dispensary, New York; Editor-in-Chief, American Journal of Surgery, and Eli Moschowitz, A.B., M.D., Assistant Physician, Mount Sinai Hospital Dispensary, New York; Associate Editor, American Journal of Surgery. Second Series. Duodecimo; 125 pages. New York: Surgery Publishing Co., 92 William Street, 1907. Price, \$1.00.

The second edition of this useful little book shows the text to be largely augmented by additions from the authors' personal observations.

The first edition was quickly exhausted and we are sure that the present edition, in its enlarged and completed form, will be appreciated in proportion to its size.

There are five hundred paragraphs, each one of which is a separate and useful bit of practical knowledge.

A Text-Book of Clinical Anatomy for Students and Practitioners. By Daniel N. Eisendrath, A.B., M.D., Adjunct Professor of Surgery in the Medical Department of the University of Illinois; Attending

Surgeon to the Cook County Hospital Chicago.—Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1907. Octavo, pp. 535. \$5.

The second edition of this superb and practical work in the study of surface and topographic anatomy as applied to the daily practice of both medicine and surgery, is before us, with the text thoroughly revised, and a number of illustrations added.

The book is intended as a bridge between the anatomy usually taught in the first and second years and the clinical work of the last two years of a medical course.

The knowledge which it imparts is indispensable to every one engaged in the practice of medicine, and it is so arranged and illustrated that it is easy of study.

The excellent drawings will be found of great service to the practitioner who is rusty in his anatomy.

Merck's 1907 Index. An encyclopedia for the chemist; pharmacist and physician. Octavo, pp. 472. Merck & Co., New York.

This book gives the names and synonyms, source or origin, chemical nature and formulas, physical form, appearance and properties, melting and boiling points, solubilities, specific gravities and methods of testing, physiological effects, therapeutic uses, modes of administration and application, ordinary and maximum doses, incompatibles, special cautions, hints on keeping and handling, etc., of the chemicals and drugs used in chemistry, medicine and the arts.

As the Index is not intended to be a price-list, no prices are given, but instead, comparative values are stated for convenience. Drugs procurable of the Merck brand are thus designated, and as these products are the standard, they should be specified in the prescription.

Every practitioner should have a copy on his desk for constant use.

The value of medical science as a means of opening the way to friendly and confidential relations with primitive peoples has again been proved by Dr. Preuss, of the Berlin Anthropological Museum, states the *Sun*. This worker went to Mexico to make a scientific study of some of the Indian tribes, and fortunately arrived at a time when his medical skill enabled him to render important services to the Cora and Huichol tribes. He thus won their complete confidence, so that they permitted him to witness their festivals and ceremonies and to learn the significance of them. His camera was constantly in play; and he moreover took home with him a large collection of folk-lore, prayers and songs. It was medical skill that helped Livingston through his sixteen years of wandering up and down in unknown Africa. It was his skillful treatment of the sick and suffering that carried Arnot safely, though without any trade goods to pay his way, more than a thousand miles to Garanganze in the upper Congo basin, of which he was the pioneer explorer. Missionary societies have been and are today using the medical branch of their service more and more as convincing proof of their helpfulness and humanity and as a practical foundation upon which to develop their special work. "The world is conferring no greater boon upon the peoples of elementary culture than to make medical skill available for their need."

CORRESPONDENCE

MEDICAL THOUGHTS, FACTS, FADS AND FANCIES.

To the Editor of the MEDICAL TIMES:

Zola has said in "Fecondite" that 20,000 women in France, not from necessity, had voluntarily submitted to the operation of being unsexed in order to escape the possibility of being burdened by the fruit of their wombs. This most horrible statement of the condition of women and the dangers they willingly submit to is proven or endorsed by Leon Daudet in "*Les Morticoles*," and in "*Les Florifènes*," by Camille Pert, however to some appearing as exaggerations, is worth study to illustrate the state of society and the depravity of a nation which is most rapidly rushing headlong to the destruction that awaited and reached Babylon. One will ask, "Is it possible in this civilized land of ours, that any young woman would, not from disease of any of the sexual organs, voluntarily submit to the operation of being unsexed?" To this question, the answer is, "Yes; there are records preserved in the memory of men; but these records are few. However, in time, foolish young women, assisted and encouraged by young and aspiring surgeons, will arouse an American Zola, who, with words more carefully selected, not banal, will give us a chapter that will arouse moralists and all good citizens, who have apparently been sleeping during the last decade—even longer—while their sisters, daughters, even wives, and the innocents among their acquaintances have had their ovaries removed—to please operators in search of reputations more than to satisfy the demands of honest surgery for the removal of diseased organs. It may be said and with encouragement that humanity has to some extent been wise enough after the slaughterers have been surfeited with blood and won honors, so termed, to quickly consider in due time, even if late, the wide-spread havoc and the great losses our own and other civilized countries have sustained. Why not the sterilization of men? No, except in the case of criminals of every grade, and although this has wisely been advised and considered, yet it is not adopted as it should be. This age, it may be said, considering the wide-spread publicity it allows to be produced and introduced, of sexual interests, so-called, is not wisely tolerant of or enriched by this so-called literature, but is really debased thereby.

That lawfully qualified doctors should assist in spreading any writings relating to the genitalia of either sex, whereby others not of our profession are the supposed readers is an injustice not only to themselves as doctors, but to us who are compelled to call them brothers, to all of the best interests and good and honored name of medicine, and not least to the country which very unfortunately for its honor gave them birth, or which contains residences for their foul bodies.

It is unbecoming to us who, as contributors to medical literature, make explanatory remarks in reference to what may be termed *delicate* subjects to use vulgar expressions or words even if medical journals should be given our copies, for our lexicons are rich in words and terms or expressions, which when carefully selected and introduced, convey the thoughts of the brother without the evidence, too often noticed,

that the writer was a blackguard—unfortunately a doctor.

The several able and most distinguished writers whose articles have occasionally appeared in our best journals in medicine, have so modestly and professionally clothed their words and expressions, that if one holding a D.D. and was in possession of our medical works were to assume authorship he certainly could not have succeeded better in using clean words and expressions while describing the many disorders, the result of too much civilization, so-called, and the absence of the belief in too many instances of the divinity in man and the divine possibilities and responsibilities, of which he too often is ignorant. If the author of *Religio Medici* (Sir Thomas Browne) or Harvey, or Sydenham, or any of those of our venerated masters were to give literature of a case whose history were repulsive, one fact is this, that the scholarly men among us could most intelligently read such classical literature without disrespect to themselves or their profession. The absence of ability to express one's views or description of the said delicate subjects in language purely medical and classical is evidently due to the lack of scholarship in the English or ancient classics so prevalent in those who too frequently disgrace our medical journals by their banal writings. Then, too, the advertisements, so-called ethical, of our medical journals, are, when associated with illustrations, none too chaste, and too often not in keeping with the dignity and honor of medicine; and as proof one has illustrations before him when inspection of any medical journal is made, and it is needless here to give examples, for if such were done it would be adding material to our disgrace. Now and then I notice in our journals statements that some weak brother allows, and with his encouragement, his wife to discuss with him current medical publications. Such admissions, however, fortunately for the honor of medicine are few, for a doctor's wife should be an exemplar of purity and a leader in the ranks for its encouragement, yet if debased in or by sexual thoughts, the daily papers, new cure fads, corset journals, religious monthlies, whirling spray syringe advertisements, advertisements of bust developers, etc., will partially satisfy her selacious cravings, corrupt thoughts and aspirations.

The publication in book form of matter in any way descriptive of sexual relationships and disorders by qualified men in our ranks has never produced the good results had in view by the over-zealous and yet narrow-minded authors; in fact, when such information is thus publicly launched it often proves misleading or misunderstood and very frequently is injurious to the lay reader and always to the family doctor, who not only has to combat the newly-acquired ignorance and erroneous impressions of his patient, and in so doing will find stubbornness and want of fidelity ever present and in association, which are as detrimental to the welfare and cure under advisement. No one honorable man bearing the relationship to us of brother in our profession will ever defame himself and medicine by authorship of any work which may be classed with publications bearing such titles as *The Family Physician*, *Medical Adviser*, etc., if so, he is indeed ignorant of the harm that will be produced through his ill-founded zeal and furor for author-

ship, not least the injury to the work of his honest brother. To the traitors in medicine—those who are unfortunately licensed by our State or Provincial licensing boards—unfortunately for our good standing and work—obscene medical literature and false promises are their stock. Yet these non-supporters of our medical ethics, of whom it may be truthfully said, "Gentler pirates never scuttled ships," exist and are allowed to exist and grow rich, and even our medical journals encourage and our State or Provincial medical societies through indifference or the lack of formulated restrictions, silently encourage.

"Fidus in Arcanis" appears on the seal of my Provincial license. "Studia Abeunt in Mores" is on the seal of my diploma, and there appears in the diploma a sentence which states that I have proven a worthy and educated man, worthy of the honored degree of Doctor in Medicine. If such an honor has been given by long study and examination, is it not my duty as an alumnus and as a good citizen to follow the brief teachings of these Latin words? If these admonitions are not sufficient, my own conscience and the knowledge that I am a member of one of the most learned professions, whose virtues have been "cradled in story and nourished in song," should afford me instruction what to do and what to avoid to preserve professional good standing, while encouraging and advancing, in my humble way, every good interest of our profession—even if to the minorities does such fidelity appear as essential when there are so many weak links in the medical chain.

A weak link and untrustful is he whose misguided zeal prompts him to do any act by which he is disgraced and such acts are too frequently those as have herein been named, not forgetting others, of which the endorsement and use of purely proprietary, so-called ethpharmaceutical preparations and testimonial giving may be named, which are condemned by our code or principles of medical ethics, which the father of the American Medical Association, N. S. Davies, M.D., LL.D., of Chicago, so well illustrated and encouraged in his teachings and his writings. Yet if one carefully reviews the most rascally literature, such as refers to non-ethical and non-official compounds, and of which our offices are the dumping-grounds, it will be found too often to our disgrace that many professors and other leading lights are guilty of testimonial writing.

We can and will pity him, our brother, who in his ignorance—in his youth—ignorant of medical ethics (for such was never mentioned by his professors), who egotistically writes a paper for his journal in praise of a patent dope; but when the aged president of a Western State Board of Health or licensing system, who was quite recently the president of a State university and has LL.D. attached to his name, affixes his name as an endorser of a proprietary preparation, we abandon hope. The signature of this weak brother is attached to the State license on Diploma A., No. 4018, which names me as a licentiate. The only medical journal of said State has, when publishing the names of the State's licentiates, furnished each member of the State Medical Board with a copy of Medical Ethics quite similar to that issued by the Am. Med. Association. Is there then any excuse why an old practitioner, a president of the State Board of Exam-

iners, should be ignorant of medical ethics, which to us M.D.'s is as much of religion as the Ten Commandments are to the Christian world? Dr. Cathell in his able work "The Physician Himself," for many years has re-echoed this fact, and in my "Medical Ethics and Cognate Subjects" it has been repeated. My MSS. for a new publication contain many references to the code; its personal and public necessity; its demands, and reasons for adherence to it if we believe "united we stand, divided we fall." "We must hang together or we will hang separately," said the immortal Franklin, and the Divine Hippocrates—*Princeps Medicorum*—who wrote the oath which Gomperz says "is the most memorable of all human documents," tells us that if we wish to give away our studies and our experience our sons and the sons of fellow practitioners should alone be the ones selected as our disciples. When I am told that nurses are instructed in medicine and that even our best men are instructing butterfly nurses in the *arcana* of our profession, I endorse, unreservedly, the old statement that "we doctors are easy marks." I ask, "Were the Japanese spies feasted when caught in the act of taking draughts of fortifications in the vicinity of Los Angeles? Does the legal profession honor and nourish those who, as assistants or hangers-on, may be anxious to get into the shoes of their masters? No! Does the ministry encourage, feed and house those who quietly are undermining their churches? No! Does the Law or the Church allow its satellites to assume for themselves the title of "*profession*" and to be considered the equals if not the superiors of their masters? No!

With no wish or attempt to express my views in felicitous expression (*felicita curiosa*) I sincerely hope, however, that one or more suggestions or interests named may be worthy of the attention of my zealous brother, and if I have presented this paper in vain, and if it is not pregnant with good thought or consideration, certainly love's labor has been lost, and with Anne of the "Merry Wives of Windsor," I must exclaim: "Alas, I had rather be set quick i' the earth and bowled to death with turnips."

I may be pardonable in this publication of a mid-summer night's dream, however I will await your decisions, consoling myself with this: *Fim̄s honorat opus: stant omnia rite peracta* (the end atones: all's well when all is done). JAMES S. SPRAGUE, M.D. Stirling, Ont.

After Care in Urethrotomy.—Swinburne finds the primary hemorrhage usually slight; but bleeding is likely if erection occurs (*Am. Jour. Surg.*, Feby., 1907). Such bleeding may occur at night, especially on the second, third or fourth following the operation. A greater factor than erection in causing bleeding is the passage of sounds. Swinburne refrains from passing instruments until fully a fortnight after operation, nor has he noted any stricture following upon this practice. There are cases of inveterate urethral discharge associated with stricture which admits full-sized sounds, but which can be detected by a bulbous bougie. Here cure can be best achieved by means of an internal urethrotomy carried to the point that the examining bougie will no longer detect a stricture. In some of the cases dilatation without cutting may be prolonged to any extent of time without result.

OUR AMSTERDAM LETTER.

(From Our Special Correspondent.)

Holland a Land of Peace and of Accomplishment—Varied Activity Without a Strenuous Life—International Congress of Psychiatry, Neurology, Psychology and Nursing of the Insane Opens Under Royal Auspices.

AMSTERDAM, August 30, 1907.

Rest and peace, oxygen and nitrogen, are the components of the atmosphere of Holland. The only creatures who evince actual excitement are the young children and those who vend fruits from the tail of a cart. These shout and are strenuous; but all others are placid and easy-going. The half-grown boys smoke their cigars reflectively as do all the men; the dogs and women who pull the carts pull slowly; the mastless lighters in the canals idle along scarcely faster than the leaves float on the surface. But the Hollander is a worker. He toils hard, though calmly. His work is unremitting, but it does not irritate him. He accomplishes vast labor with little evidence of it. He has small use for horses except at the great docks. He does not care for, nor will he brook the extravagance of an automobile. But his work is accomplished thoroughly, accurately and completely.

Perfect peace seems, to the man in the street, to pervade The Hague; yet momentous interests are at stake in the deliberations of the Peace Congress. In Amsterdam the drowsy autumn is at hand, yet a most thoroughly organized and very important convocation is about to be held. On September 2, Her Most Gracious Majesty Queen Wilhelmina will open the *Congrès International de Psychiatrie, de Neurologie, de Psychologie et de l'Assistance des Aliénés*.

Committees have been organized for the promotion of this convention in the following countries: United States of America, Argentine Republic, Australia, Belgium, Bulgaria, Brazil, Chili, Denmark, Germany, England, Spain, France, Greece, Hungary, Ireland, Italy, Norway, Sweden, Austria, Poland, Portugal, Roumania, Russia, Servia, Switzerland, Scotland, Uruguay and Turkey.

Probably no country in the world has taken up the study of modern psychiatry with more interest than has the United States. Our specialists in this field have shown active interest in this Congress, and our delegation promises to be large.

Our national committee includes Weir Mitchell, Keen, J. K. Mitchell, Mills and Spiller of Philadelphia; Burgess of Montreal; Hughes of St. Louis; Hurd, of Johns Hopkins, Baltimore; William James, of Harvard; Justrow of Wisconsin; Paton of Baltimore; Patrick of Chicago; Pilgrim of Poughkeepsie; Schlapp of New York; and Carlos F. Mac Donald of New York, Chairman; Wm. Mabon of New York, Vice-chairman; and Louise G. Robinovitch of New York, Secretary.

The delegates at-large from the United States are Henry G. Beyer, medical inspector, U. S. Navy; Smith Ely Jelliffe, New York City (also representing the American Neurological Association); Wm. W. Keen, Jefferson Medical College, Philadelphia; Carlos F. Mac Donald, New York University and Bellevue Hospital Medical College, New York; Wm. A. White, Government Hospital for the Insane, Washington; and Mary M. Wolfe, State Hospital for the Insane, Norristown, Penn. The following special delegates, appointed to represent various interests, are expected to be present:

C. H. Hughes, editor of the *Alienist and Neurologist*; Elmer Ernest Southard, Boston Neurological and Psychiatric Society; Theophil Klingman, Neurologist, University Hospital, Ann Arbor, Mich.; Albert Warren Ferris, Adolf Meyer and B. Sachs, of the New York Neurological Society; and Carl D. Camp, of the Philadelphia Neurological Society. Among others of note who are expected are Joffroy, Ségla, Joire, J. Voisin, and Déjérine of Paris; Régis of Bordeaux; Podesta of Buenos Ayres; Moreira of Rio de Janeiro; Bruce and Needham of London; Catsaras of Athens; Riiji Shima of Kyoto; Ramón y Cajal and Ortega of Madrid; Norman of Dublin; Mac Intosh and Mackenzie of Aberdeen; and Marcus of Stockholm.

The work of the Congress will be divided into three sections. Winkle and Solomonson of Amsterdam are the presidents of the section on psychiatry and neurology. To this section are assigned the following topics: Hysteria, Chronic Alcoholic Psychoses, Asymbolia and apraxia, dementia, the anatomy of the cerebral cortex, epilepsy, hemiplegia, the tonus of the labyrinth, and the tonus of the cerebellum. Dr. Carlos F. MacDonald of New York will join Pick of Prague, Monachow of Zurich, and Liepman of Berlin in presenting the topic Asymbolia and Apraxia.

Heymans of Groningen is the president of the section on Psychology and Psycho-physiology, to which are assigned the following topics: The Physiology of Puberty; The Lange-James Theory of Emotion; The Difference Between Perception and Idea; the Secondary Function of the Cerebrum; and the past history of psychopathy.

Ruysch, of The Hague, is the president of the section on Nursing of the Insane, to which are assigned the following themes: The Organization of Hospitals for the Insane, and State Supervision; The Instruction of Nurses; Boarding Out of the Insane, and Work in the Fields; The Care of Insane Criminals; Varieties of Psychotherapy and the Education of Backward Children.

At the general meetings of all the delegates papers will be presented on the psycho-neuroses, the mechanism of reflex movements; and the evolution of the vertebrate central nervous system.

Her Majesty the Queen will formally open the Congress in the Municipal Council Hall, and receive the delegates, and in the evening Mr. Van Leemven, Burgomaster of Amsterdam, will give a reception to the congressists. The committee has arranged several enjoyable events, for the entertainment of the delegates, including a reception by the Students' Club, a special theatre party, a boat ride through the canals of Amsterdam, a trip to Leyden and The Hague, and a final dinner at the beach at Scheveningen, in all of which festivities the ladies accompanying the delegates are invited to participate.

Perforating Typhoid Ulcer.—T. C. Shattuck (*Bost. Med. and Surg. Jour.*, July 18, '07) believes that operation cannot be done too early. Better results are to be looked for through prompt recognition of the condition, more accurate knowledge as to the time of election, careful consideration of the special features in each case and realization of the fact that a patient with perforation in the course of an acute, though prolonged infection tolerates anaesthesia, and intervention less well than one in full health, with perforation of the stomach and appendix.

RECENT ADVANCES IN MEDICAL CONDITIONS CONSIDERED DIFFICULT TO IMPROVE.

To the Editor of THE MEDICAL TIMES:

The control of high arterial tension is not appreciated as it should be by the medical profession as a whole. Thus, as an editorial in the *Therapeutic Gazette* points out: "In some instances all other lines of treatment fail because it is ignored. On the part of surgeons it not infrequently happens that careful urinary analyses are made prior to a surgical operation for the purpose of determining the condition of the kidneys, and the more cautious operators also have made an examination of the blood. Few of them, however, study carefully the state of the blood-vessels unless these parts of the body are so far advanced in athromatous degeneration that their condition is so marked that it cannot be overlooked. It not infrequently happens that a patient suffering from high arterial tension has a sufficient degree of cardiac hypertrophy to enable his heart to pump the blood when to the constant high tension is added the still further rise in blood pressure produced by the administration of the anesthetic and the excitement attendant upon the approach of an operation, the heart unable to stand the strain, undergoes dilation, or is so overtaxed that it is seriously enfeebled. As a result pulmonary and circulatory complications arise, for which ether is given the discredit, when in reality the carelessness of the clinician is at fault, for the administration of nitro-glycerin for a few days before the operation and immediately prior to the use of the anesthetic might put aside all difficulties.

"Physicians endeavoring to guide a patient through an acute illness due to an infection not infrequently ignore the fact that an arteriocalillary fibrosis in its early stages is forcing the heart to do an excessive amount of work, and are surprised when this organ breaks down, even although digitalis may be given. If the heart had not been stimulated to increased endeavor, but had been enabled to pump against a lower pressure, no such failure would have occurred."

Oliver in the London *Lancet* supports the views that there is very little difference between the value of red and white meats in the treatment of renal disease and vascular fibrosis; chemical analysis shows no material difference, and clinical experience does not require, in the majority of cases, at least, in cutting out red meats from the diet list and permitting white meats. There is only one type of food derived from the animal kingdom which is particularly harmful in these cases, namely, concentrated gravies and soups which contain large quantities of salts and creatin and creatinin, all of which tend to raise pressure themselves or indirectly have a similar effect through an increased burden upon the kidneys during elimination. Yet the use of milk diet is advantageous in many of these cases, and part of its advantage probably arises from the fact that a patient very seldom ingests enough milk in the course of twenty-four hours to provide him with the normal number of calories, or heat units, which are necessary for the maintenance of nutrition, so that the patient in reality is to a very considerable extent subjected to a "starvation cure," and this starvation cure enables him to utilize or oxidize substances which have been stored up in his body in excess, diminishing his arterial tension by depriving the body of sources from which it obtains large amounts of energy. In other words, such

a modified starvation treatment acts as a nervous and general systemic sedative. Oliver believes that persons who have arrived at that time of life at which high arterial tension is prone to develop are not infrequently the users of larger quantities of salt than in their earlier decades, and he suggests, as did the late Sir William Roberts that chloride of potassium be substituted for chloride of sodium as table salt, as it acts as a cardiovascular sedative, whereas sodium chloride is more of a stimulant. Unfortunately, chloride of potassium is disagreeable in its taste to many persons, but some of its advantages may be obtained, and this gustatory disadvantage eradicated, by giving the patient a table salt composed of equal parts of sodium chloride and potassium chloride. Oliver himself gives the following mixture as a table salt:

Benzoate of lithium, 1 drachm;
Potassium chloride, 2 ounces;
Sodium chloride, 1 ounce.

Of this 30 grains may be used at a time. Oliver also thinks that tobacco smoking is not particularly deleterious in these cases, although when it can be given up without much suffering on the part of a patient, its use had better be stopped. But otherwise the good to be achieved by forbidding tobacco does not equal the discomfort following its withdrawal.

Oliver emphasizes the importance of rest in the treatment of cases of high arterial tension; in a considerable number of these cases the cardiovascular sedatives which are useful in these chronic cases which are so often met with in high-strung nervous individuals are almost useless unless at the same time a certain amount of rest of body and mind is insisted upon. After the blood-pressure has been lowered to the point desired, increased activity can be permitted and the vascular sedatives continued.

Along a similar line Perutz describes cases of what he calls "angina abdominalis," the sclerotic condition of the abdominal vessels causing at times violent painful spasms in the abdomen, sometimes merging directly into an attack of the latter due to spasmodic contraction of the vessels of the intestines, and the resulting local rise in blood-pressure. These pains are probably located in the sympathetic and the mesenteric plexuses; besides the anatomic changes in the vascular apparatus, functional disturbances, as from the influence of nicotin and other poisons, are liable to produce such spasms. It often happens that differentiation is frequently difficult until after prolonged observation, but it is aided by the prompt benefit generally derived from drugs acting on the vascular system. In one of Perutz's patients a gastric ulcer was first diagnosed, the predominant symptoms being tenderness in the epigastrium, pains in the stomach after eating, vomiting and backache with considerable enlargement of the heart with a presystolic murmur at all the orifices; the pulse being fast but regular. Treatment for the assumed ulcer brought no improvement and the attacks of pain recurred, starting in the stomach region and radiating to the back, with dyspnea and anguish, and these attacks were generally brought on by physical exertion and were accompanied by vomiting. Roentgenoscopy showed the existence of an aneurism of the ascending aorta, and considerable improvement followed administration of remedies to act on the vessels and heart. Again, several patients long under treat-

ment elsewhere for assumed gastric catarrh or nervous dyspepsia were treated. In two cases a cancer in the stomach was surmised, for after meals the stomach became distended and relief was sometimes obtained by eructations, at other times the dyspnea was extreme; the pulse being at times irregular after the attack, but nothing pathologic could be detected in the circulatory system and there was no blood in the feces. Dietetic and medicinal measures addressed to the stomach failed to afford relief and no benefit was derived from any measures until drugs useful in arteriosclerosis were tried, when improvement at once became manifest. Recurrent attacks were dispelled by digitalis, nitroglycerin, etc. In two cases there had been hematemesis before the patient came under treatment, and only the failure of measures addressed to the stomach differentiated the abdominal affection at last. In two cases the symptoms suggested intestinal occlusion and neither patient survived the laparotomy, and the autopsy revealed in one case extensive sclerosis of the abdominal aorta and in the other old thrombosis of the superior mesenteric artery partial compensation by collaterals; death in this case was due to a recent hemorrhage and infarct which had developed in consequence of the altered blood pressure during the operation. In another case the apparently indicated laparotomy for a surmised chronic affection of the cecum was postponed on consideration of the abuse of tobacco, the existing myocarditis and the signs of arteriosclerosis elsewhere, and the prompt benefit from drugs acting on the blood vessels confirmed the diagnosis of arteriosclerosis in the intestinal vessels.

In another patient, a man of 47, whose stomach had been sensitive for years on lying down after dinner, the pulse became small, with anguish, dizziness and cold sweat; the stomach region was distended and so sensitive that the patient fainted when it was palpated, as also when the contents were aspirated. The condition improved somewhat under massage, etc., but a marked change for the better was noted following the use of digitalis and valerian. Extrasystoles were still occasionally observed, but they finally vanished after the patient visited the seashore. Cautious evacuation of the intestines and regulation without the necessity for drugs, or at most, only potassium iodid. Vasomotor disturbances in the splanchnic region are a frequent accompaniment of the obstinate spastic atony of the intestines observed in young persons presenting general myasthenia. An abnormally irritable condition of the vessels and nerves is a frequent accompaniment of this condition. Perutz believes that more attention should be paid to the anatomic and functional circulatory disturbances which follow sluggish bowel action and meteorism.

In studying the relation of the stomach to other organs Frouin gives interesting results of the removal of the stomach with the idea of deciding whether the stomach is essential to life and whether it exerts any influence on other organs by internal secretion. For this purpose he removed the stomach completely from dogs and succeeded in keeping them alive for months and in one case for five years. While the animals continued to exist, it was possible to demonstrate certain changes which show that the function of the stomach is not simply to act as a reservoir for the food, thus in these dogs from which the stomach had been

removed, for from three months to five years, there was a notable distension of the abdomen, and at the autopsies more or less intense congestion of the liver was found with sometimes a hepatic hypertrophy. In the animal which lived five years there were numerous small renal cysts and an abscess in the cortical portion which he attributes to the removal of the stomach. In normal animals it is possible to recover pepsin from the various organs, but in animals from which the stomach has been removed no pepsin can be found in the organs. The ferment is produced in the stomach and absorbed from it into the blood, and Frouin believes that this ferment is useful in the intracellular fermentations, and that the metabolism will suffer when the organ is removed.

Frouin explains that while the acid secretions of the stomach are active in producing secretion, there are other substances which have a similar action; for instance, soaps. Fleig has found that alcohol produces secretion, consequently when the stomach is removed the pancreatic and other digestive secretions are stimulated in such a way as to replace to some degree the digestive action of the stomach.

Lennander in a recent issue of the *Journal of the American Medical Association* says: "When considering the pains connected with infectious diseases of the liver and gall bladder one has to remember that well-known embryologic facts, as well as my own researches and the investigations of Ramstrom, all lead to the assumption that the liver, the gall bladder and the extrahepatic bile passages do not possess nerves of pain. One has further to consider the distribution of the lymph vessels from these organs to the posterior abdominal wall and diaphragm as well as their anastomoses with the lymphatics of the duodenum and pancreas. One can then easily understand that infectious diseases of the liver and gall bladder are apt to be followed by spasms of the diaphragm and that the movements of the common bile duct, the duodenum and stomach may be attended by pain. When the gall bladder contracts spasmodically in order to expel its contents there results a stretching of the cystic and common bile ducts and consequently a displacement of the parietal peritoneum and the extremely sensitive retroperitoneal connective tissue around the common bile duct. If a tube has been fixed (water tight) into the gall bladder in a case of cystostomy for cholecystitis, 100 c. c. or more of saline solution may be made to pass from the gall bladder into the duodenum (the biliary passages being free) without the patient feeling anything so long as the solution is being slowly injected into the gall bladder. If the injection is made with a little greater force the patient almost immediately complains of colicky pain in the back. With a shrunken gall bladder and a very wide common bile duct biliary colic due to the stretching or distension of the common bile duct is inconceivable.

"It is quite necessary to consider carefully the account which the patient gives of his pain. Lately a patient of mine suffering from an acute hemorrhagic pancreatitis stated that the attack of pain began with a sensation as if the large blood vessel at the back had burst near the pit of the stomach. The autopsy showed, in addition to the pancreatic hemorrhages, a large retroperitoneal extravasation around the celiac artery and the aorta. One must never forget how dif-

ficult it is to localize pain and to how great an extent a correct interpretation of the site of painful sensation is a matter of practice.

"Lennander in estimating abdominal pain, and especially in connection with illness giving the symptoms of 'ileus,' suggests that:

1. Pains do not originate in the abdominal wall, more especially in the parietal serous membrane and subserous connective tissue structures which are innervated by the cerebrospinal nerves.

3. Stretching of the parietal (mesenteric) attachments of the stomach and intestines, as well as of string or band-like adhesions to the abdominal parietes, invariably elicits pain.

4. The same thing holds true for the displacement of the parietal serosa from its normal relation to the muscles or aponeuroses of the abdominal wall.

5. Most of the diseases connected with ileus are, at their commencement, attended by increased and, as a rule, irregular peristalsis.

6. Chemically different substances, such as the contents of the stomach, gall bladder, intestine or abscesses, give rise to severe pains when they come into contact with a healthy or hyperemic parietal peritoneum (pain due to perforation).

7. Even that form of acute peritonitis which goes under the name of peritoneal irritation (peritoneale reizung) greatly increases the sensitiveness of the parietal serous membrane.

8. The sensitiveness of the parietal peritoneum at first increases *pari passu* with the inflammation, but later decreases again when the inflammation has reached a certain high degree, and in many cases may ultimately cease altogether. (Compare herewith erysipelas of the skin, more especially the gangrenous kind.)

In studying the ethereal sulphates in gastrointestinal putrefaction, Brunon and Guerber decided: 1. The coefficient of intestinal fermentation is the relation of the ethereal sulphates of the urine to 100 parts of total urinary nitrogen estimated in SO_2 . 2. As a result of experiments made by one of the authors on healthy individuals, this coefficient is often less than 1, and never passes 1.4. Diets such as milk, vegetarian, mixed or meat, do not effect this result. 3. On the other hand, in patients in whom one suspects hepatic or renal insufficiency (except in the case of uremia, in which it tends to be depressed), this coefficient may serve to measure the degree of alimentary intoxication. It exceeds 1.4 and may reach a very high figure. In their observations this elevation of the coefficient almost always coincided with a slight albuminuria. 4. The diet has a very marked effect on the coefficient. The vegetarian or milk diet associated with absorption of lactic acid ferments lowers it. 5. Clinical improvement has always been observed in these cases. 6. The determination of the coefficient of intestinal fermentation is a simple clinical procedure. This coefficient is capable of giving the physician useful practical indications for diagnosis, prognosis and dietetic treatment."

To administer saline purgatives, Bancroft after a series of careful experiments, reaches these conclusions: 1. In any experiments dealing with the quantity and character of the feces eliminated, it is absolutely essential that the feces of the experimental animals should be compared with those of the control animals kept at the same time and treated in the same way as the ex-

perimented animals, except, of course, that no salts are given them. The need of this precaution is largely responsible for the different results arrived at by Auer and MacCallum. 2. When small doses of mild purgative are given a bulky diet will sometimes largely mask any effect that might be due to the purgative. In such experiments, therefore, a more concentrated diet should be given. 3. The subcutaneous injections of small doses of sodium citrate was found to increase the feces eliminated for the next three to five hours to twenty-three times the amount eliminated by the controls. 4. The intravenous injection of maximum doses of sodium sulphate was found to increase the feces ten times. 5. The subcutaneous injections of 2 c. c. of barium chlorid was found to increase the feces eliminated for the next two hours fourteen and one-half times. 6. Large subcutaneous or intravenous doses of all three of these salts make the feces eliminated unusually moist. After barium chlorid the feces even become partially fluid. 7. Fluid feces can be more easily obtained with sodium citrate when it is given by mouth because it usually takes more than 100 c. c. of an solution to produce fluid feces, and this amount is almost always fatal when given subcutaneously. 8. With sodium sulphate, fluid feces are more easily obtained when the salt is given by the mouth because: (a) It is but slowly absorbed from the digestive tract, and so is passed down into the cecum which it distends and the contents of which it dilutes. It thus remains in contact with the walls of the digestive tract for a long time and has a chance to affect the mechanism for peristalsis and secretion absorbed from the subcutaneous tissue, and so never reaches the wall of the digestive tract in sufficient concentration to produce its maximum effect. (c) when introduced into the circulation it acts as a diuretic and is thus rapidly eliminated and never reaches the intestines in sufficient concentration and for a long enough time to produce its maximum effect before it has killed rabbit. 9. With barium chloride fluid feces are more easily obtained when the salt is given subcutaneously than when it is given by the mouth. 10. In considering the effect of any salt, it should always be borne in mind that the effect may be due to the activity of either anion or cation. Magnesium sulphate acts as a purgative on account of its anion. 11. All these results go to show that MacCallum's conclusions are correct: The mechanism for causing purgation is in the intestinal walls and is stimulated whenever any saline purgative reaches it in sufficient concentration, no matter in what way that purgative may have been introduced into the body.

In studying the clinical importance of retention of food in the stomach Nyrop investigates the evidence on record in regard to operative treatment of stomach affections and finds in 156 cases in which laparotomy was done for gastric affections that they were about equally divided between malignant and non-malignant. All conclusions point to the supreme importance of retention for diagnosis and differentiation; it may be the result of a malignant or harmless affection; it may be of functional or organic origin, and in the latter case may be the result of some obstacle to the evacuation of the stomach or to weakness of the stomach musculature. Whatever the cause, it indicates operative treatment. Nyrop pleads for tests for retention in every stomach and intestinal affection from the mild-

est to the severest, without exception, as also in all abdominal affections accompanied by gastric symptoms. The test recommended is the Bourget test meal, consisting of eight or ten stewed prunes, meat and bread. Nothing is eaten after this meal, taken at 7 P. M. and the next morning, about 7 A. M. the contents of the stomach are withdrawn and the stomach is rinsed out. The findings in 202 cases are tabulated, with the diagnosis and course. The results show that the discovery of remains of meat and prunes in the stomach twelve hours after their digestion, is always a sign of some notable disturbance in the functioning of the stomach, and that this discovery indicates laparotomy. In 75 of the 202 patients examined the rinsing fluid was always free from remains of the test meal, and although there were marked evidences of a gastric affection in these cases, yet the absence of retention showed the spasmodic character of the trouble, and its subsidence during sleep, or else that the stomach was able to overcome the obstacle during repose. In some cases make the test in the morning, giving the test meal at 8 A. M. and examining the stomach contents at 8 P. M. Nyrop cites from personal experience and the literature as example to prove the necessity for the rule: 'Retention, no matter how slight, twelve hours after a Bourget test meal, is always an indication for laparotomy.' It is comparatively immaterial, Nyrop asserts, whether the underlying trouble is malignant or non-malignant.

There has been a sort of "psychic epidemic" in Boston led by two well-known ministers, Drs. Worcester and McComb. For the purposes of study Smith has taken 100 neurasthenic cases at random and divides them into two great classes: 1. Those individuals born with an inherited predisposition—children of tuberculous, alcoholic, syphilitic, and nervous parents especially—are predisposed to the affection, as the digestion of such patients is readily impaired, and their delicate nervous protoplasm suffers still more from faulty metabolism. Such patients are very susceptible to indigestion, mental or physical shock, fright and emotional disturbances, and from their number, furnish us with the best of traumatic neurasthenia. A large number of nervous dyspeptics belong to this class, and by carefully watching their numerous bodily sensations, the latter soon become pathologic, and the habit of autosuggestion is established and ere long such patients may become hypochondriacs. 2. Those whose heritage is good, but who acquired the affection by bad environment, improper training in youth, at home and in school; persons who worry for fear of not making both ends meet, and those who have habit spasm. Low metabolism was found to be the stigma in the majority of hereditary cases, and in some of the acquired cases. He describes in detail the method of procedure, which is essentially the same as that set forth by Oppenheim in the "Psychotherapeutische Briefe," published in 1906, but Smith does not attempt to carry it out by correspondence, finding office treatment serves the purpose. He considers the nature of fatigue, physical, mental or emotional, as affecting the neurotic, and its erection into an autosuggestive habit and then discusses in some detail the special application of the method to symptoms, headache, autotextemia and faulty metabolism. He then sums up the requirements of the physician to practice psychotherapy as follows: 1. A strong personality. 2. Thorough knowledge of the patient.

3. Considerable knowledge of psychology. 4. Broad scientific training. Prophylaxis must always be kept in mind, as such a large percentage of neurotics trace the origin of their affection to their childhood. His experience confirms Barker's view that patients past middle life do not yield so well as those between 20 and 40, being, as they are, more opinionated and more commonly subjects of some organic disease. He adds that, "the chief value of the psychic factor is in the care of the organic diseases, as their functional affections are fast disappearing under the light of better diagnosis." Smith believes that in recent years the eminent role played by psychotherapy is wholly unjustifiable and misleading. He deprecates the incorporation of the science of medicine with theology, for while the fundamental principles of right and wrong may be identical, the deductive processes by which the sciences are built up are essentially different.

Finally Pitzman in the *Journal of the American Medical Association* gives a simple proof of the cessation of respiration. In the receiving room of the St. Louis City Hospital the ambulances bring in many patients dead, or apparently so, and it is my duty to determine quickly and definitely whether or not a patient is still living. These patients are pulseless and there is no visible sign of respiration. They appear extremely pallid, the pupils are dilated and there are the other signs of probable death. For the final proof we turn to the respiration. For some reason our reception room is not supplied with a mirror for the familiar breath test, so I was forced to a substitute.

The mouth is closed by hand and then the anterior nares of both sides are filled and covered with fine soapsuds. If respiration has ceased there is absolutely no movement of the bubbles. As it is evident that a patient cannot live without breathing this test continued for a few minutes is an absolute proof of death.

This test is everywhere possible and is more simple and more reliable than the mirror test.

WM. WORMLY, M.D.

The Saturday Night Tub.—In a lecture delivered in London by Mr. Sydney Young on "Relations Anciently Existing Between Barbers and Surgeons," we learn that it was customary for Henry VIII. on occasional Saturday evenings to perform partial ablutions, specifically "to cleanse his head, legs, or feet." One John Pen, Penn, or Penne, the king's barber, an ancestor of the famous Quaker, William, was expected to be present at these august ceremonies. The barber's attendance was indeed a regulation dating apparently from the reign of Edward IV. It would seem that these solemn washings were partial and special, rather than thorough; and the king's majesty often did without them. The royal barber was also a groom of the privy chamber and one of the fifteen persons allowed to enter it. He shaved the king daily "having in readiness his water, basins, knives, combs, scissors, and such other stuffe as to his roome doth appertaine for trimming and dressing of the king's head and beard." The barber was further required to "take a special regard to the pure and clean keeping of his own person and apparel, using himself always honestly in his conversation without resorting to the company of vile persons." Here, observes the *Lancet*, we have

the beginning of asepsis. When the king was being thus shaved a knight of the chamber or squire of the body or bath had to be present in order to prevent foul play. The portrait of Pen figures prominently in Holbein's famous picture of the eighth Henry delivering a charter to the barbers and surgeons on the occasion of their union in one body.

The Prophylaxis of Post-Operative Diphtheria.—H. A. Barnes (*Bost. Med. and Sur. Jour.*, May 38, '07) has found that the Klebs-Loeffler bacillus may be present in the nose or throat of from one to three per cent. of average healthy individuals. These cases have, however, little or no clinical significance. But in direct or indirect contacts, they may be found in a much larger percentage of cases, and are likely to prove virulent. Barnes' paper is based on a fatal case of diphtheria following an operation for tonsils and adenoids. He advises examination of every patient when the appointment for an operation is made, a second the day before operation. If there are any suspicious signs or any history of sore throat in the family or in the school, cultures should be taken. Finally, a third examination should be made before anesthesia.

The problem of the degenerate is discussed most ably by the *Canada Lancet* (August, '07): *Mens sana in corpore sano* is a wise dictum which has come down to us through many centuries; the ancients comprehended it well. The brain is an organ of the body; and it cannot escape from its environment. The fable of the belly and its members is a *propos*. Some conditions of life affect certain organs more than others. In some occupations, for example, consumptives are met with more than in others. Drinking habits are more liable to affect the kidneys, the liver and the nervous system, than other tissues. A bad strain once acquired has far-reaching effects. The children of drunkards do not approach the standard of the children of sober parents. Every tissue in the body of the alcoholic suffers, and the health of every cell is impaired—including the sperm and the ovum. These latter cells unite in the production of a new organism, and in the alcoholic they start on this important work in a state of lowered vitality. It matters not whether the alcoholic tendency be transmitted; there remains the potent fact that the offspring of such a sperm cell is likely to be in some way physically weak. In the germinative cells lies the potentiality for every part of the complete being. Every condition that tends to lower the vitality of the parents—overwork, poor food while developing, unsanitary homes, consanguineous marriages, and the like—makes for the production of the degenerate. The State may be called upon to control by legislation some of these untoward factors. From one woman in London, England, over one hundred degenerate descendants can be traced. In our educational institutions some useful information concerning matrimony might be judiciously imparted.

Indicanuria.—W. H. Porter (*Med. Rec.*, June 15, '07) finds this to be one of the most important conditions to be met with. Blue substances have been recorded as appearing in the urine from the time of Hippocrates. Prout discovered indican in 1840; Baumann and Breiger were the first to determine its composition accurately. Bayer found that indol, a simpler substance was the antecedent of the more complex

body indican, which Neucki and others have demonstrated to result from putrefactive fermentation. Animal are more likely than vegetable proteids to undergo such fermentation; on the other hand vegetable proteids are less economic and often detrimental to the system, being much more difficult of digestion than the animal class. Senator has proved that bacterial action is required to produce putrefactive fermentation in connection with the production of indican; it is primarily formed in the intestinal tract and not in the liver. Many toxins are formed at the time of its production; these are absorbed into the circulation from the alimentary tract, and by their action upon the nervous system excite many symptoms. The production of indican is favored by errors of diet, lack of out-door exercise, defective digestive secretions and profound disturbances in the working of the nervous mechanism. Indican is never a normal ingredient in the liver; it always indicates a condition of disease, because a putrefactive process is never a normal or a physiological one. In treatment the factors causative of indicanuria must be apprehended accurately; and the best methods must then be pursued for removing them.

The Causes of Seasickness.—K. F. Lund (*The Practitioner*, Aug., '07) concludes that the vomiting is not due to the unusual impression of vision, for it may occur on land, when the eyes are closed, and even to the blind. It is not due to smell; any unpleasant odor may cause vomiting and may occur on land, and to any (including deaf mutes) who have sensitive nasal organs. It is not due to momentary displacement of viscera for it occurs in swinging or in descending upon an elevator. The sensation is present whether the eyes are open or closed; but it does not occur in deaf mutes. There is some mechanism in the auditory organ (perhaps the semi-circular canals) which is directly affected by the movements of a vessel at sea, acting as a stimulant to the vomiting centre. The sensation in the ears is synchronous with that in the epigastrium and may be due to change in the equilibrium of the endolymph in the semicircular canals. The treatment consists in lowering by means of narcotics the sensibility of the nerves, especially those concerned in reflex vomiting.

Intussusception is another name for uteral strangulated hernia, states J. D. Rushmore (*Am. Surg.*, Aug., '07). The symptoms (except indicative of the tumor) are evident and striking; and the diagnosis is therefore not difficult. If the tumor is not easily felt a general anaesthetic should be given at once to complete the diagnosis, without waiting for the possible development of a tumor. The treatment (which should be surgical) should be practiced within twelve hours of the occurrence of the strangulation. Should gangrene supervene the degenerative process would progress more rapidly than in other forms of hernia. Abdominal section and manual reduction offer the best chances for recovery. Such mechanical agencies as air, gas and water, while free from the danger of atmospheric exposure and of manipulation of the gut, are objectionable because with their aid alone one does not know the condition of the intestine to be reduced, nor even if it has been reduced. The mortality, when the operation has been promptly performed, has been only 12.5 per cent.

Direct Transfusion of Blood.—The therapeutic

effects may be grouped into three classes: positive, negative and undetermined, states Geo. W. Crile (*Southern Practitioner*, May, '07). Among the positive results is transfusion in apparently fatal acute hemorrhage. In pathological hemorrhage it has proved positive in improving the patient's immediate condition; in most instances it has wholly controlled the hemorrhage itself. In shock its value seems far greater than any other remedy. From the experimental standpoint it seems to be the most effective treatment of illuminating gas poisoning. Among the negative results are transfusion in pernicious anemia, leukemia, carcinoma, strychnine poisoning and diphtheria toxemia. Of Crile's twenty-one clinical cases all were technically successful. In every one the donee experienced a heightened vitality, and in the absence of serious organic disease the patient became buoyant, even jocose. Some had chills during transfusion or soon after, and a majority showed some febrile reaction later. Crile's paper is a report of progress; he and his associates intend to go over the field and to establish limitations.

A Practical Medical Paper.—J. Madison Taylor in the August *Cyclopedia of Practical Medicine*, well observes that the most patent deficiency in medical writings is the inadequate presentation of fundamental principles, in definite formulations. The custom of placing at the end of an article a summary of conclusions is admirable; many times, however, this is the only part read. It requires some skill and an orderly mind to pick out the tenable formulations, the acceptable conclusions; the subject written upon is better presented by reducing these to definite headings. In text books this is seldom done as completely as it should be. "That medical paper is most practical which states the proposition fairly, presents the facts concisely, analyzes these clearly, estimates the underlying points, physiological, pathogenic and other, accurately, builds up the argument logically, deduces conclusions: (1) those obvious or inevitable, (2) those reasonably certain, (3) those justifiably inferential, or (4) possible.

The abolition of the State license tax is being earnestly advocated by the Medical Society of Virginia. Only six among all our States impose such a nefarious tax, as follows: Delaware, annually, \$10; Virginia, \$10 for those who have practiced five years or less, \$25 for others resident in cities or towns, and \$15 for rural practitioners; North Carolina, \$5; Florida, \$10 annually to the State, and \$5 to the city or license taxes on the basis of annual collections, the lowest being \$5, for both State and parish, and intermediate sums up to \$50 on \$5,000 receipts. "But," states the *Virginia Medical Semi-Monthly*, "everybody seems to consider the demand so unjust that the law is not enforced except in a few instances."

Fees of German Doctors.—The question recently arose for decision in the German High Court whether doctors in a certain district had the right to fix a general fee for professional attendance. It was decided that such services could not be reckoned up as were those of other professional men. The court observed that it is a generally accepted idea that the doctor's calling was based on an unselfish desire to do good, and not upon a determination to secure a commensurate return for his services, which was a mere side issue. Are a doctor's duties to fulfill a man's natural obligations to his family and to society also "a mere side issue?"

MISCELLANY

The use of Pilocarpine for the relief of pruritus, especially in regard to pruritus vulvæ, is not nearly as general as it should be, declares J. J. Reid (*N. Y. Med. Rec.*, May 25, '07). For this affection the drug should be given in doses of from one-eighth to one-quarter grain.

Acid Intoxication or Acidosis—E. S. Talbot (*N. Y. Med. Rec.*, June 1, '07) has, during an investigation of the cause of erosion of the teeth collected many tests of the total acidity of the urine. He finds that excessive acidity of this excretion is a cause of interstitial gingivitis, and an indication of faulty metabolism.

The Salicylates and Epistaxis—E. Leach (*Brit. Med. Jour.*, Apr. 20, 1907) believes that the salicylates given in influenza are responsible for the nose-bleed attendant upon that affection. This not uncommon symptom of salicylism may be due to the impurities in the drug. Leach relates some cases in which the epistaxis ceased soon after this drug was stopped.

Urethral stricture is a possibility in young children suffering from such urinary disturbances as frequent micturition, vesical tenesmus, retention, etc.; this should always be considered even in the absence of a traumatism or of gonorrheal infection. Internal urethrotomy, followed by systematic dilatation is as successful in these cases as in older persons, states the *International Journal of Surgery*.

Vehicles in preparing ointments are of three classes (C. S. N. Hallberg, *J. A. M. A.*, May 25, '07): Non-preparations; and penetrative or absorptive substances, line or petrolatum; semi-penetrative substances, such as lard and olive oil, used in emollient or astringent preparations; and penetrative or absorptive substances, such as lanolin, which are used in ointments applied to produce constitutional effects.

Floating Kidneys.—Hector Mackenzie has found that among 2,801 females of all ages, 516 had distinctly movable kidneys, while among 1,607 males only 11 were found to have this motility. Out of the 516 females thus afflicted, however, 411 did not even know that they possessed erratic kidneys. It is probable, therefore, observes the *J. A. M. A.*, that slight mobility of these organs is no such serious condition as many medical writers have led us to believe.

Manila is the cleanest city in the entire Orient, declares the *Manila American*, and the statement is proved by the records of the bureau of health, which show that there has not in six months been a case of contagious disease. Such a record is the first not only in the history of the American occupation, but also, so far as known, in the history of the islands. Not an epidemic disease has been reported thus far in 1907, nor can the same be said of any other district "all up and down the China coast and other tropical cities in other countries." Another noteworthy fact is that "there have been fewer deaths during the current month than ever before since American occupation."

A new immigration law has recently become effective. The head tax on all aliens is raised from \$2 to \$4. The excluded classes are increased by adding to the list of ineligible imbeciles, feeble-minded persons, the tuberculous, those certified upon medical examination to be so defective mentally or physically as to affect their ability to earn a living, and all persons com-

ing into the United States for immoral purposes. The decision of a board of special inquiry is made final, not only as to the rejection of aliens afflicted with loathsome or dangerous contagious diseases or with mental or physical disability bringing them within the excluded classes, but also as to persons who have tuberculosis.

Tuberculosis of the accessory sinuses of the nose is of rare occurrence, states J. W. Gleitsman (*The Laryngoscope*); yet it deserves more attention than it usually receives. The exact causative factor is not easily found. Most cases seem, however, to be due to extension from a neighboring focus. In twenty reported cases the maxillary sinus was involved in twelve. Most of these patients suffered from pulmonary tuberculosis, and only a few had symptoms of antrum empyema without any constitutional disturbance. Tubercle bacilli were found in the discharges evacuated at operation. The prognosis is doubtful; the treatment is surgical and not differing essentially from that of severe sinus abscesses.

A valuable sign in exophthalmic goitre consists in (a) arrest of descent; (b) spasm, and (c) further closure of the superior eyelid, declares L. L. Boston (*N. Y. Med. Jour.*, Aug. 17, '07). All three of these phenomena follow one after the other in rather rapid succession as the eye is rotated from above downward. The spasm takes place after the patient has first rotated the eye upward and then attempts to follow the physician's finger as it is carried below a level with the chin. The upper lid follows downward with the pupil for a short distance when it rests for an instant, then displays a slight spasm with apparent slipping back, after which it continues to follow the pupil for an indefinite distance.

A public school for deaf children, the first of its kind in New York City, has been established by its Board of Education. Two hundred children can be accommodated in the building assigned to this purpose. The committee which has considered the matter advises that lip reading and oral speech should be taught exclusively; it has been found that pupils in classes taught exclusively by the lip method make better progress, have better trained minds and have greater confidence in themselves than those taught in whole or in part by the manual method." Individual attention is absolutely essential in the training of the deaf. It is therefore advised that the classes should not consist of more than ten children, and further that industrial work should have a prominent part in the course of instruction.

Phimosi as a cause of general disturbances apart from those usually dwelt upon as referable to the nervous system and the urinary tract, is well considered by Witzhausen (*Munch. Mediz. wochenschr.*, May 28, '07), who has in a number of cases relieved constipation in infants by circumcising. He finds that as the result of the constriction about the prepuce the act of urination is made difficult, so that the bladder tends to be imperfectly emptied, and a more or less serious state of overflow incontinence results. The pelvic organs are consequently crowded by the enlarged bladder, the rectum is pressed upon and constipation results. This early perversion of function may induce more or less serious and persistent disturbances which may require a long time to subside even after circumcision.

THE EXAMINATION OF THE TEST MEAL.

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THIS is so trite a subject that an apology may be needed for discussing it again; yet there are a number of minor points about which there is considerable difference of opinion and which may lead to errors of conclusion. It is also of advantage to reduce such procedures, as nearly as possible, to a routine.

It ought not to be necessary to state that the patient should not be subjected to the expense, discomfort, and possible danger of intubation of the œsophagus, unless the physician is able to extract the stomach contents in proper condition for examination, is prepared to examine them in a satisfactory way, and to draw practical conclusions from the examination. Yet, quite frequently, one gets the history from a patient or physician of unsuccessful efforts at extraction, of extraction only after dilution with water poured through the tube, of extraction without a laboratory equipment, so that the contents are simply smelled of and looked at and then thrown away or of various other errors which lead one to wonder why the tube was passed at all.

For ordinary tests, the best meal is one of about 50 grams of bread, 5 grams of butter and 250 c. c. of water, or, approximately, two small slices of bread and butter and a glassful of water. However, almost any meal may be used in an emergency or vomited matter may be used.

The standard time for extraction is 1–1½ hours after ingestion. The meal described should have left the stomach about two hours after its ingestion. If the pylorus is relaxed, the stomach may be found perfectly empty an hour after ingestion and in that case it is advisable to add a small piece of meat—say 50 grams, well chewed—to the next test meal.

Considerable care should be taken that the patient understands about the test meal. It should be firmly impressed upon him that he must report at exactly the time set for extraction, that he must eat nothing at all except the test meal and that he must not dilute it with beverages taken within an hour or two before or at any time after the meal. Neither must he take the test meal before reasonable time—say five or six hours—has elapsed after the next preceding meal. Patients will take fried oysters an hour or two before a test meal, drink milk before or after it, consider that beverage means something that they have to pay for and not water, fail to note the time of ingestion, or do any other unreasonable thing to interfere with the utility of the test, unless we warn them explicitly in advance and sometimes in spite of the warning and written directions. I recollect a senior medical student who took a glass of wine on his way to have the test meal extracted.

Before making an appointment to examine stomach contents, we should exclude serious heart or vascular disease, advanced pregnancy, high grades of general weakness and local conditions of the throat, œsophagus and stomach, in which the passage of the tube, by direct impact, or by reflex spasm, is likely to cause rupture or hæmorrhage. This includes many cases of old age, on account of the blood vessels, and

most cases of gastric ulcer of any kind, advanced hepatic sclerosis on account of the probability of varicosities of the stomach or œsophagus. Nervous conditions pure and simple are only relative contra-indications. It is scarcely worth while to pass an œsophageal bougie in advance, but reasonable precautions should be taken to learn that the throat and œsophagus are patent. I have seen one or two cases in which syphilitic ulceration of the pharynx had so nearly closed the throat that there would not be room to breathe around the tube.

False teeth should be removed before passing the tube and the tube itself should not be brittle. We should also be on our guard against biting the tube by children, insane patients and those of highly neurotic constitution.

Some writers speak of guiding the tube into the œsophagus and of rendering the throat insensitive by cocaine, &c. The flexible tube cannot be guided, but its passage into the œsophagus can be facilitated by the following precautions: Have the patient hold the head horizontal, without turning it from the middle line; pass the tube as far backward as possible, the tongue being protruded; have the patient swallow at this time; then direct him to take deep, panting respirations, which relax the musculature. If the tube has been put away coiled, it is liable to enter the larynx. In any case, water should not be put in the tube nor should it be pushed against resistance until it is certain that the air passages have not been entered. This can easily be determined by feeling or listening for a respiratory tide of air at the outer end of the tube. A very slight tide may be felt if the tube is in the stomach but a marked tide is possible only when the tube is in the larynx or trachea. In a recent case (No. 46 of 1905-6), the tube which had been slightly bent by coiling, entered the larynx three or four times. Its outer end was closed by a bulb (see below) and the patient could breathe freely enough around the tube yet, on removing the bulb, the respiratory tide through the tube was distinct. I have passed the tube probably a thousand times without such an accident and yet, within a year, I have had it happen three or four times in different patients. Therefore, it is unsafe to ignore the possibility of entering the air passages with the stomach tube.

It is practically impossible to remove the reflex gagging incident to the passage of the œsophageal instruments, as local anesthetics cannot control a muscular spasm and as general sedatives are obviously contraindicated, if we wish to get an idea of the secretory and motor function of the stomach. Some advise heating the stomach tube, others cooling it with ice or snow. Generally speaking, my patients seem to prefer throat and rectal instruments at about the body temperature. It is unnecessary to lubricate the tube except by wetting it and, indeed, other lubricants contaminate the stomach contents.

The failure to obtain stomach contents and the old idea that the normal contents, an hour after a test meal, amounted to only 20-40 c. c., are explained largely by the use of small tubes. As a matter of routine, I use a tube 11 millimeters in diameter, with a nearly square-cut gastric end. Lately the Kemp Rubber Co. has made one for me 15 or 16 millimeters in diameter outside. Such tubes allow the fairly free pas-

sage of contents, though no tube can be made that will accommodate unchewed meat. For extraction I employ a large vaginal bulb with fairly strong walls and, occasionally, expression by the hand over the stomach.

The essential apparatus for a fairly complete examination of chyme is as follows:

Measuring jar, which can be improvised from cat-sup bottles with the aid of a standard pipette or graduated tube, and a file or strips of adhesive plaster. For ordinary purposes graduations 50 c. c. apart are sufficient.

Filter and filter paper, about three or four inches in diameter. A rack is scarcely necessary as the filter can be set in a wide-mouthed bottle.

A ten c. c. pipette (or graduated tube, the pipette being more accurate and convenient). Approximately one per cent. alcoholic solutions of dimethyl-amido-azo-benzol and phenolphthalein as indicators for free HCl and total acidity, respectively. Decinormal alkali solution, preferably of sodium hydroxid. Instead of the porcelain capsule and stirring rod of the clinical chemists and the conic flask and white tile of the real chemist, I prefer to use an old white tea cup, rather deep and narrow.

Liq. ferri chloridi.

Microscope, slides and covers.

There may be added the ordinary reagents for urinary analysis and various other indicators than those mentioned. A centrifuge facilitates the preparation of a clear filtrate and enables a rough estimate of proteid digestion to be made.

My routine is as follows:

1. Measure total contents, using suction and forcing air into stomach through tube, with the tube at different levels to insure complete extraction.

2. Centrifugalize 100 c. c. in special 50 c. c. tubes (or total chyme if less than 100 c. c.). Swab off, or rather push off with match wound with absorbent cotton, the top layer consisting of mucus and butter. Note rancidity, consistence of oily layer, quickly solidifying mass probably indicating oleomargarin, note quantity of mucus.

3. Pour off middle, nearly clear layer into dry filter. Most tests, except for proteolysis, may be performed on the unfiltered middle layer, if the centrifuge is run long enough. Note quantity of filtrate as compared with total chyme: If the filtrate is 75 per cent. or more, there is probably hyperchlorhydria, or, at least, excessive secretion; if 25 per cent. or less there is probably catarrh with hypochlorhydria. Note microscopic appearance of lower layer. Imperfect mastication, use of bran flours, indigestible or absolutely foreign substances, seeds, sausage skins, tendon ends, &c., from previous meals may be thus detected.

4. Titrate for acidity. Unless there is insufficient material, use 10 c. c. of clear filtrate, adding several drops of dimethyl-amido-azo-benzol. If there is a cherry red color, free HCl is present. When this has been neutralized by adding decinormal alkali the tint will have changed to orange but the end-point is not very sharp. Continue the titration until a clear straw yellow color is reached, being careful to note the contrast between the point at which the alkali drops and the general tint in the cup. The two points should be ten or fifteen degrees apart. If the first point has been passed make correction by subtracting ten or

fifteen degrees from the final point. *Do not read the entire range of color with dimethyl as free HCl.* Those who do this make the practical as well as theoretic error of exaggerating the free HCl and they may even treat as hyperchlorhydria, cases which really need additional HCl. The free HCl should be somewhere between twenty-five and forty degrees. When the free HCl has been read, add phenolphthalein to the same portion and continue the titration till the filtrate becomes plum-colored (or about the color of potassium permanganate solutions). At this point, all acid factors have been neutralized. The total acidity should be read from the beginning of the titration with dimethyl, not from the final change with dimethyl. Do not use a float, but sight horizontally across the burette, which should be kept clear and bright. If the lines on the burette become indistinct, they may be reinforced by rubbing with the side of a lead pencil. Those who smoke while doing laboratory work should be careful not to drop ashes into the titration cup. For example, a single ordinary discharge of ash from a cigarette was found to contain free alkali equivalent to 0.4 c. c. of decinormal solution, or four per cent. or degrees, in the customary investigations with 10 c. c. of investigandum.

If there is more than, say, 30 c. c. of filtrate available (10 c. c. being required for the titration for HCl and total acidity, the same amount for the proteolysis test and about 1 c. c. for the various qualitative tests) it is well to titrate with other indicators. The first choice would be alizarin, which changes from brownish to a peculiar purple, a few degrees beyond the final change with dimethyl. This indicator is not only a check on the HCl determination, but gives an idea of the amount of fermentation, acidity, and, on the other hand, of the combined HCl. Using a pure dilution of HCl the end points with dimethyl, alizarin and phenolphthalein, are almost identical. In chyme, the change of dimethyl from orange to straw yellow, is due to neutralization of fermentation acids or acid phosphates or both. Alizarin, theoretically, changes when all acid factors except HCl in combination with proteids, have been neutralized and, in particular, it marks the change from H_3PO_4 to H_2NaPO_4 . These two statements are obviously contradictory and remind one of the small boy's conundrum: "This boy has the same father and mother that I have but he is not my brother. How do you account for it?" The solution of the small boy's problem was that he lied. In the case of chyme, it certainly is a misstatement to declare that all acid factors except combined HCl are neutralized at the alizarin end-point and it is equally untrue that the final change with dimethyl corresponds to the neutralization of free HCl. But, in a very crude way, we may say that if the final change with dimethyl is separated from the alizarin end-point by more than a few degrees, there is a good deal of fermentation acidity and also, that ignoring phosphates, the difference between the alizarin and the phenolphthalein end-points, indicates the amount of HCl combined with proteid. In normal chyme, free HCl should be indicated by a titration of 25-40 degrees, then there should be a change of color from orange to straw yellow, about 15 degrees farther along, the alizarin end-point should be reached about five degrees later (but in a separate titration) and the total acidity by phenolphthalein should be about

double that for free HCl alone. Contrary to the advice of some clinical chemists, the writer believes that dimethyl and phenolphthalein are the only indicators in gastric analysis which can be used in succession, in the same specimen, without interference of colors.

If there is an abundance of filtrate, tropæolin 00 and congo red may also be used to titrate free HCl. They include with free HCl vegetable acids but, if the latter are present in small amount, the results are about the same as for dimethyl. Indeed, the latter is influenced somewhat by fermentation acids but only to a slight extent. For instance, if chyme is set aside for several days the free HCl reading by dimethyl is usually increased a few degrees, though it is not conceivable that HCl has been increased. Under ordinary circumstances, the tropæolin reading will be a few degrees higher than the change from cherry to orange with dimethyl, while the congo red reading will be about the same as for the final change with dimethyl. Thus, these indicators are to be considered merely as checks upon the dimethyl titration.

If it be desired to be very exact in the titration of free HCl, and there is plenty of filtrate, it is a good plan to use the previously described dimethyl titration as a preliminary, then to start fresh with a new sample of 10 c. c. of filtrate and add decinormal alkali solution, without an indicator, stopping about five degrees short of the first end-point obtained with dimethyl. A drop of the investigandum is now heated, short of charring, upon a porcelain dish or tile, with a drop of phloroglucin-vanillin or resorcin and cane-sugar reagent. If a vermillion tint occurs at the margin of the drying mixture, free HCl is still present. This procedure is repeated after repeated additions of one or one or two degrees (tenth c. c.) of decinormal alkali, until the vermillion becomes a faint rose color. This point may be taken as a nearly accurate reading for free HCl.

If there remains an abundance of filtrate, we may estimate the combined chlorids by adding to 10 c. c. of investigandum, 1 c. c. of a 10 per cent. solution of sodium tungstate. This is supposed to combine with HCl in combination with proteid, so as to form NaCl and proteid tungstate, both of which are neutral to phenolphthalein. If we now titrate to the phenolphthalein end-point, the total acidity will have been materially reduced and the difference between the original and the new acidity is supposed to represent the acidity due to combined HCl. This estimate does not agree at all closely with that obtained by the alizarin method. Moreover, the writer has shown that the addition of sodium tungstate destroys the cherry color obtained with dimethyl and it also is possible, by running the titration through several hours, to obtain a total acidity equal to the original, the color change with phenolphthalein fading out in the intervals. Just what is the significance of these apparently contradictory results, the writer is unable to explain.

It is also interesting to set aside portions of an abundant filtrate for examination at intervals of days or weeks. The more free HCl there is in chyme, the less change occurs from subsequent fermentation. In samples having a low HCl acidity, the total acidity increases up to 150 degrees or thereabouts, on account of fermentation acids, and, as already mentioned, there is a paradoxical increase in the reading of free HCl by dimethyl,

strong vegetable acids acting like HCl upon this indicator, but the apparent increase of HCl is never more than a few degrees.

5. It is customary to test for the carbohydrates present in chyme, although the qualitative results are usually remarkably similar and quantitative investigations are difficult, almost never carried out clinically, and of doubtful value. Any convenient mixture of iodine, potassium iodide and water may be used. A bluish black color indicates undigested and, indeed, undissolved starch. A clear, purplish blue indicates soluble starch, a reddish color, erythro-dextrin; a reddish purple, soluble starch plus erythro-dextrin; no change indicates that the dextrinization has passed the stage of erythro-dextrin and that achroo-dextrin has been formed, or else that there is no starch at all in the filtrate; while maltose is detected by the ordinary alkaline solutions of copper, as is dextrose in urine. Hyperchlorhydria should theoretically be marked by an excess of starch and an absence of sugar. These tests are, of course, absent after test meals free from starch or very late after ingestion. Usually, erythro-dextrin and sugar or soluble starch, erythro-dextrin and sugar will be found. Before boiling in the sugar test, the ring of contact between the copper solution and the investigandum should be inspected for a lilac band, indicating albumoses and peptones. This ring is always present, excepting when peptonization has absolutely failed, as in achylia. Its absence is, therefore, of considerable significance.

6. A very dilute, almost colorless solution of ferric chlorid obtained by adding an inch or so of distilled water to a drop of liq. ferri chloridi, is colored reddish by acetic acid, yellowish or greenish yellow by lactic acid and lactates. Or the color of the ferric chlorid may be killed by adding a drop of phenol solution, producing an amethyst solution, or by a weak solution of gentian violet. If an excess of lactic acid is present, one or two drops of filtered chyme, restore the yellow color. In marked stagnation, this color is intense and is developed in the cold. Under ordinary circumstances of hyperchlorhydria, the yellow does not develop immediately, but is produced by heating. The writer has found that a convenient modification of the test is to heat the reagent, pour it into a shallow porcelain dish—for instance, the porcelain cover of an ointment jar—and to drop the investigandum into the hot liquid, noting the change, if any, at the point of contact. By the way, even a great excess of lactic acid is not diagnostic of cancer, excepting as cancer of the stomach locates at the pylorus and causes retention of chyme, or, by tending to diminish HCl secretion, favors fermentation.

7. Tests for bile, blood, etc., should be made as indicated by color of chyme or by other circumstances, in the ordinary ways. Green chyme is said by some to be usually due to mold, but, in the writer's experience, it is usually due to bile, as determined by Gmelin's test. Bile pigment invariably, in the writer's experience, remains yellow if there is no HCl present, while yellow bile regurgitated into the stomach or artificially added to chyme, soon becomes green from oxidation of the pigment, if HCl is present in appreciable amount. Thus the biliary tint of stomach contents is a diagnostic sign with regard to the secretion of the stomach itself.

8. The microscopic examination of the sediment of a test meal is interesting rather as preliminary study than as a routine, although detective work as to food adulter-

ation, the kind of food habitually taken, etc., may be done and corroborative testimony may be obtained along the lines of chemic examination. Evidence of the state of the gastric wall itself is much better obtained from the microscopic examination of the fasting stomach contents extracted several hours after a meal, or even vomited. On the whole, the practical value of the microscopic examination has been exaggerated. For instance, we may find blood corpuscles, but it is exceedingly difficult to exclude an accidental traumatism by the tube which has no practical significance. Again, it has been seriously proposed to diagnose cancer by simple microscopic inspection of bacilli that are merely accidental companions of cancerous disease and which are introduced from without, whether there is cancer or not. Theoretically, it is possible to diagnose catarrh, cancer, etc., from particles cast off from the gastric wall, but many practical difficulties attend such investigations. The stomach is constantly desquamating and, personally, I am inclined to believe that, under ordinary conditions, every stomach is usually catarrhal in spots. To diagnose gastritis from cast-off and partially decomposed or digested bits of mucosa does not appeal to me as much more satisfactory than to diagnose skin diseases by minor epithelial desquamation. Even granting that a cancer exists, it is a long time—longer than the period in which the diagnosis affords a chance for successful eradication—before sloughing occurs, and, even then, the ulcerated, digested and rotten fragment is very far from being a typical section of the new growth. I have, several times, made a positive diagnosis of gastric cancer from microscopic examinations of wash water, but I have never been able to do so early enough to have the diagnosis of use to the patient, nor have I ever found any one fragment upon such a diagnosis could be based. On the other hand, I have known very able clinicians, though not posing as gastric or histologic experts, to diagnose cancer from the appearance of perfectly normal shreds of gastric mucosa torn off during lavage. Thus, all things considered, I regard the microscopic examination of gastric contents, either after a test meal, or as obtained from the jejune organ, as of very minor practical importance, though often useful as an aid in certain cases.

9. The quantitative analysis of the digestive process. Such analysis is along two lines, the measurement of peptic activity by digestive tests and the estimation of the work actually accomplished in peptonizing the test meal. Neither of these methods is at all exact nor free from fallacies. The latter I have described in the *Journal of the A. M. A.* for March 23 and 30, 1901, and in the *Am. Jour. of Medical Sciences* for

There is a considerable difference of opinion as to whether pepsin and rennin are the same ferment acting differently on different substances, or whether they are distinct. At any rate, the milk-coagulating and the peptic power of the stomach usually rise and fall together. A drop of filtrate added to two or three c. c. of fresh milk in a test tube set in a cup of water at the body temperature, should produce a firm coagulum in about 15 minutes. An oven is unnecessary for such tests and, by employing a large dish of warm water in a warm room and renewing the water every 20 or 30 minutes, quite satisfactory digestive tests may be carried out. The failure of coagulation should be verified by testing the milk used, with rennet solution or chyme of known

ferment action, as some milk does not coagulate. Why this is, I do not know, but it is probably on account of some manipulation by dealers, to preserve it. Lack of ferment action indicates some form of achylia gastrica, for instance that due to chronic catarrh and anadenia, the functional achylia due to surgical shock or Addison's disease or, if these can be excluded, the condition is much more diagnostic of cancer than is failure of HCl. I have never found lack of ferments, as indicated by the copper test for peptones, by my tests for proteolysis and by failure of milk coagulation, in the presence of free HCl and, indeed, I have never found but a few such cases in all.

Finally, it should be remembered that the examination of stomach contents indicates the present condition of digestion, from the physiologic standpoint and from that of the physiologic activity of micro-organisms introduced from without. It is only inferentially that we can draw conclusions as to the pathologic state of the stomach and these conclusions should be carefully checked by physical examination and investigation of the viscera generally.

DEFENCE AGAINST CONSUMPTION.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

AT last the world is being waked up to the simple truth and fact that the only available protection against consumption, and the only cure worth the name after its inception, is pure decent air for the breathing channels, including the lungs. And pure decent air must be continuously renewed in its freshness, or at once it begins to become stale and unwholesome—unfit to either prevent or to remedy any diseased conditions of the breathing channels and lungs. It is requiring endless teaching and insistent demonstration to convince blundering humanity of the simplicity and absolute necessity of making fresh air in the home, the school and church, the lecture room and work room, the daily and nightly feeder of vitality, the preserver of healthy lungs and good blood. Good quality of blood, indeed, may be relied on for the protection of the system against nearly every ordinary form of disease. It should be as apparent as the nose on the face that it is only by breathing pure fresh air into the air cells of the lungs that the purifying of the impure blood corpuscles that are pumped to the lung cells with every successive heart-beat for the purpose of purification by re-oxygenation can ever be effectually accomplished. Everything that is inhaled that is naturally injurious to the lung tissues naturally paves the melancholy way to consumption sooner or later. All forms of poisoned air inhaled tends to promote a depressed quality of blood, a degenerate condition of the organs of the body, a proneness toward decay, a wasting process in the tissues of the body in which the lungs themselves become most deeply involved because with every breath they are swept by degenerate air on one side and by unrenewed blood cells on the other side. After their break and ulcerative process, the evolution of bacilli or ferment of that type, spontaneously follows the nearly helpless avenues of disintegration because the circulating current of decay finds no rescue.

Like most other large towns full of locomotives and factory smoke stacks, indifferent management of house

fuels and illuminants, Philadelphia is a consumed city. Its location and size make it a representative example of the deeply grounded prevalence of the great white plague. Were it not for its masked poisons, its tremendous underground channels of sewage with outlets of pernicious sewer gas at every street corner, its corrupting strata of burning gas stink from leakages beneath the surface of the ground and at all dug places, its avalanche of toxic carbonic oxide gases from the incalculable combustion of fuels by various modes in the city's area, its subtle invasions of similar debilitating fuel gases with closed doors and windows in the homes and other interiors of this vast aggregation of buildings, its clouds of soot and smoke and disgusting dust, its overcrowded condition of population in certain unsanitary centres—were it not for these and such as these vital depressants and lung destroying agents, consumption would not whiten and choke and destroy by tuberculosis process the endless swathes of victims that are cut down in Philadelphia. Not desiring to now press to attention the weight of massive statistics, permit me to offer proof of the principles that I believe cling around lung disease. From a bunch of weekly reports of deaths in this city I quote only a few that illustrate the aggressiveness of the white reaper when houses and business places are usually more particularly kept closed with their toxic gases from burning fuels—this in contrast with deaths from similar causes in the warmer months when doors and windows are open much of the time and fresher air obtained in greater abundance.

For one week in January, 1906, died of tuberculosis, 81 cases.

For same week, died of pneumonia, 80 cases.

For one week in January, 1907, died of tuberculosis, 76 cases.

For same week, died of pneumonia and bronchitis, 129 cases.

For one week in February, 1907, died of tuberculosis, 95 cases.

For same week, died of pneumonia and bronchitis, 93 cases.

For one week in March, 1907, died of tuberculosis, 84 cases.

For same week, died of pneumonia and bronchitis, 100 cases.

For another week in March, 1907, died of tuberculosis, 84 cases.

For same week, died of pneumonia, 111 cases; of bronchitis, 16.

For week ending June 9th, 1907, died of tuberculosis, 87 cases.

For same week, died of pneumonia, 36 cases; of bronchitis, 11 cases.

For week ending August 3rd, 1907, died of tuberculosis, 68 cases.

For same week, died of pneumonia, 14 cases; of bronchitis, FOUR cases.

Please note that during months when houses were heated by combustion of our ordinary carbon fuels, and kept relatively closed with their abiding carbonic oxide gases from the combustion of said fuels and from illuminants, the deaths from tuberculosis or consumption ranged from eighty to ninety-five cases week-

ly; while for the same weeks the deaths from pneumonic assault including bronchitis ranged from eighty to one hundred and twenty-seven cases per week. When we then compare and contrast these destructive results with the situation during the season when houses of all classes are warmed by outdoor sunshine, and are kept habitually open for admission of fresh air by day and by night, we realize what effectual release or exemption from acute lung disease is practically proven by the advantages of fresh air hygiene in homes and business places. But some observing friend may claim that the remarkable difference in the falling off of deaths between cold weather and the warm season is out of logical proportion. That the decrease of deaths from pneumonia and bronchitis is markedly greater than the decrease in cases of tuberculosis or consumption. But the reason is implacable, since it proves that even consumptives in last stages are carried down in fewer numbers when fresh air is available than in colder months when housed in artificial heat and the blight of fuel gases that then prevail there. We will bear in mind that grippe and pneumonia are conditions of acute poisoning of the breathing organs, while tuberculosis is a resulting degeneration usually following acute injury to the lungs, and by slow process carries the rate of deaths at nearly the same rate the year round. Grippe and pneumonia are natural precursors to the later development of tuberculosis when the weakened lung is not rescued by the material restoration of fresh and clean breathing air. Hence the closing out of life during the succeeding summer months may only be the consummation of a pneumonic injury sustained the preceding year. How many consumptives, looking backward, will try to explain: "I took a heavy cold, or I had grippe, last winter or at some previous time!" when their lungs became acutely poisoned or inflamed from inhaling a local despoiler in the breathing-air—and which in common parlance they term "a cold" although they had not even been out of the house to find it! How the suffering laity have learned to conventionalize in imitation of the stupidity of the mass of doctors who cheaply mimic their dream of delusion—"You have taken a cold, that's the seat of the trouble!" Even our friends who follow bell-wethers in diagnoses by the revealed genealogy of accompanying bacilli often forget the tail of their favorite microbe, but announce off-hand: "My dear, you have taken a cold!" It's really funny!

As to the ravages of tuberculosis, professionally and personally I have a grievance as raw as Mother Earth, as deep as five fresh-made graves, dug for adult members of one family all of whom I prized as friends and patrons. Yes, graves dug between January, 1900, and October, 1907. In this mournful interval of seven years, three adult daughters, also a son, each past twenty-five years of age, and their devoted mother at about sixty years of age, were blanching from the world of human usefulness by one form of disease known as consumption—or the white plague. To study any serious problem, I must get close to it. The family was domiciled in the same location, the same houses for residence, first on west side, then on east side of their large stables in close proximity, all subject to the same influences of daily and nightly breathing-air when indoors. Beginning life humbly, the

father kept horses and carts for contract hauling, and therefore had large stable accommodations between his residences on rear and on front streets. Later on his business developed particularly in service wagons for moving family furniture and pianos, this in connection with large storage house business adjoining the family residence. The stable air of the large stables—horse privies always—naturally diffused itself into the house-air. The kitchen of either house was not roomy, some member of the family always attended to the cooking, and the carbonic gas of the coke or coal had ready entrance with the lung-air of the domestic service. Of this industrious and thrifty circle there are left to-day but the aging father and his youngest, a son nearly thirty years of age.

In regard to this appalling sweep of death in one family the idea of communicated contagion cannot be entertained. The breathing-air influences that disastrously affected one and the next and yet the next in connection with their habits and local circumstances in life, without any doubt induced similar physical conditions successively that ripened into similar physical results—death by tuberculosis. Why has the father survived, and is yet in comfortable health, while the wife and three daughters especially waned to skeletons, and their biers were banked round with lilies and white roses as funeral memorials of love's regard? The father has lived daily an outdoor life, his business compelled it, while the female portion of the family as tenaciously haunted the indoor affairs, the indoor airs of the house. The family inherited a mutuality of business gifts. The children were skilled in the art of handsome penmanship. They all worked for the accomplishment of one object—the economical accumulation of liberal means for "rainy day needs"—but none have lived to realize their fond anticipations. As growing children the family indulged a steady and rapacious relish for bread and molasses at their meals. I do not believe that a diet of bread and molasses contributes to firmness and durability of physique. Just previous to the family break-up, they had moved for a year to a location out of town for a change. The first daughter who fell a victim to tuberculosis had learned millinery, was an adept at artistic trimming, had position with popular down-town store as head trimmer, worked in crowded room with a large number of other employees during each week day. After she became ill, at my instance, she described the heavy malodors of that close workroom over the store at certain periods of the women's month. But there was money in her trade. Like many other women, she persevered for her pay-envelope till it became useless. Besides this lucrative position she had developed a private side-trade at home which she conducted by night work. The burning gaslight till late hours did not relieve a haunting cough and headache. When her father insisted that she reduce the wear by gaslight, she replied that she must meet the wishes of her patrons, and would resort to kerosene lamp to finish out her engagements by night work. About the time the family removed to their country home, her lungs gradually collapsed with tuberculosis, and in a few months she went to her grave.

Now let us pause a minute to glance at what a country residence can effect towards inducing lung disease.

The house stood upon high ground. The walls were of stone, quite impervious to the stimulation of sunlight, held inside an air of dampness. When the rough winds of cold weather blew, they blew their blast around the entire house. They whirled downward in the smoke chimneys, even to puffing outward of ashes from the kitchen and sitting-room fires. One day in March, when I visited the family, the backward draught from winds pushing down the chimney had extinguished completely the sitting-room stove fire, while the elder son, whose trade was then in "dull season," was sitting by this stove to keep warm. The father, who never before had been sick, was seized with severe grippe, which confined him to bed. Before he had recovered his wife and the eldest daughter went down also with a prostrating influenza, and occupied the same bed—in a room that I designated for them because it had no stove or heater heat that might further poison their room air by backing fuel gases. The elder son, who was home because of "dull season" in his work, and who had hovered around the sitting-room stove, also had an attack of grippe. The home was like a hospital, full of family influenza. The younger son, who was kept out in the air, looking after his father's town business, escaped the disease. The father, also his wife and daughter, had vehement cough, were severely prostrated—their strength returned slowly. When the father convalesced, he got out into the open air, resumed his moving business, and has enjoyed relatively good health ever since—now more than seven years. When the two women became convalescent the family removed back to their city residence and resumed the use of the local air adjoining their stables. The elder daughter then confined herself to house affairs, became book-keeper for her father, kept tabs on the horses and wagons engaged in hauling, superintended the old furniture storage rooms, and in a few months more became an invalid with incurable tuberculosis—in due time died. The weakened mother then took up her daughter's work, always indoors and always at it. The door bell must be answered at all hours and patrons kept on track of engagements for movings, the family cooking over the stove must also be done; and in less than another year the mother broke down with some spitting of blood and haunting cough, with very marked loss of strength and flesh; with a tragic forecast that she was doomed to follow the two daughters who had gone. Home body that she always was, she would listen to no proposition that she get away from the dirty and depressing city air, or go to any sanitarium located where pure air only was available for the cure of lung disease. Thus she progressed deathward to the end and was buried. During the progress of her invalidism, the elder son, the one who had grippe at their country place where the March winds had blown out the fires while he sat around the stove, began to complain of disability to work because of weakness. A cough with expectoration set in. He stayed home with his sick mother. Declined to go to White Haven or anywhere else for the cure of lung disease while his mother was ill. He followed his mother to the grave a few months after her death. Meantime the youngest sister, married and mother of two sons, and who had lived in the smaller house at rear of the large boarding stables, also whom I had attended successfully

through a very severe attack of pneumonia the previous year, considered herself called to the front line of filial duty, became her mother's nurse, afterward her brother's caretaker. Her own lungs had been seriously impaired by her siege of pneumonia only a few months previously. Instead of walking frequently through the stables daily to enter by the rear of her father's large residence on the front street, she had moved across and assumed charge. She practically became her father's housekeeper, door tender and order taker for the business. A few months after this she visited my office because of a pain in her chest and a worry of cough. She had begun to waste in flesh. It was the fatal beginning. In a few months more came the end—the death of one of the best and noblest types of womanhood that it has ever been my privilege to list among my friends and patrons. Three daughters, a son, and their mother gone in seven years by tuberculosis! A condition that had no precedents in family lineage. A grievous demonstration of the error of excessive application and devotion expended within the taint of polluted or toxic breathing-air for daily subsistence. In every case I found that the original break in vitality and lung integrity had been preceded by considerable and injurious fret of lung tissue and despoiling of blood corpuscle by inhaling contaminated air unconsciously. Each one had lost color, was anemic, complained of "colds" before the tuberculous development had set its fatal seal on the constitution. It was not a tramp and transient bacillus that had inaugurated the local and constitutional damage—it was the vital depression resulting from insufficient oxygenation of the blood furnished throughout the body because of a habitual use of impure breathing-air.

It is almost stunning to realize how many families habitually shut off from their lungs the vitalizing air when indoors. They are self-opinionated from sheer custom. They are loath to believe that their stoves and heaters operate any constitutional harm. A few drugs are expected to overcome any ailment that intervenes. They do not believe that sitting with the drift of fire-heat or furnace-heat direct into their faces and nostrils conveys to their lungs and blood cells any harmful results on nutrition. Women indoors wish to not recognize that hanging over their cooking fire heat, always naturally gaseous from the fuel combustion, is antagonistic to healthy breathing, to beauty of complexion and integrity of health. They do not believe that sitting by a gas stove room-warmer sheds into the local breathing-air a poison that should never be inhaled. They are loath to comprehend what a poisonous element is the carbonic oxide gas produced by the combustion of their fuel with which they cook their foods and warm their homes. They are slow to understand how the gas from burning fuel injures the integument of the throat, the lining of the windpipe, the air cells of the lungs when too persistently inhaled. They do not understand how impure air taken into the lung cells fails to refresh and regenerate the blood, leaves the blood impure, unhealthy, and hence the seat of diseases in various parts of the body, including the sensitive texture of the lungs. Each family fancies that its home equipment and method of handling fires must be harmless to health because they had never believed differently. Self-satisfied families do not

consent to think that leaking gas fixtures or a low-burning gaslight or kerosene lamp in bedrooms are subtle brigands that invisibly smother the children with croup, or plant the rot of diphtheria, that weave the net of neurasthenia, that deliver to the cold white messenger the victim of tuberculosis. The average family, though educated and intelligent, seem to think when it is cool weather the outdoor fresh air is all right; but at the same time indoors fresh air is all wrong. They will light up at dusk, then close windows and shutters for the night, and thus feed their lungs for hours with the accumulated debris of rebreathed breaths, the debris of house heating, and of gaslights. On the following morning they will wonder how they "caught cold" (?) because the throat is rough, the voice raspy, the nose stopped up, the head dull, the muscles ache. Ten repeats of this sort, and doubtless somebody is ill and the doctor needed.

If in the long past of medical function the excessive cautions by routine doctors have erroneously moulded the misapprehensions of population, then the teaching of doctors should be more censured than are the errors of the misguided public. Then were doctors, more than people, to blame for the mismanagement of house air, for the lack of sanitary defence for the lungs for the continuance of the scourge of consumption. "You have taken 'cold'—be sure you don't take 'cold'—don't risk any drafts!" have been the stereotyped injunctions, which have been applied to religiously and uncompromisingly mean, shut out the air, hug the close rooms, grow tender as peach blossoms, deprave the blood with the self-made poison of non-oxygenation, smother the lungs, court the plague of consumption, endure the degeneration of tuberculosis, take my cod oil and other stuffs until breath ceases, then go to rest! It is all ended! Was it a bacillus? No, the bacillus had to come in at last with its metaphorical little spade—but indecent breathing air ordered the grave and furnished the victim! What a web of technical talk was invented and woven to cover the bier? What a simple ray of sanitary sense might have averted the tragedy! With all my energy of sanitary logic in the cases of five deaths by consumption just related, I frequently found the volume of fresh air admitted was not sufficient for the best interests of the patient; and one cool day in the autumn I found the blanched patient in the sitting-room warming herself by a blazing gas stove set up for the purpose because it was handy, and the heater fire not yet due for service! I turned off that gas fire quicker than I can report its outrage on the young woman's lungs. Now then, as is doubtless true, since doctors in the long past have increased the invalidism of the world by false teaching, so it is now found necessary for doctors to re-learn the science of health and disease, and to recoin their doctrines in regard to the prevention, the relief, the arrest of that most prevalent of all forms of disease, consumption. And this they must now effect by the simple honesty of teaching people to always breathe clean and pure air as the natural defence of the lungs and of the entire body as well. The trail of a snail may lead to the gates of a gold bug. The modern theory of the bacillus as the active cause of consumption has undoubtedly led to the golden discovery that sunlight and oxygenating pure air do not promote the propagation of bacilli of any sort, and that good blood is always a reliable defense against the invasion of any disease, including

consumption especially; hence the sensible inference that sunlight and fresh air antagonize the development of tuberculosis, and therefore are the only natural curatives now known to the world. The present writer has been voicing this indisputable truth to the world in medical print for sixteen years. It seemed long before responding voices began to herald a brighter dawn for the relief of persons who were drifting toward the martyrdom of tuberculosis.

The hospitals, the institutes, sanatoriums and camps lately established to test the values of fresh air treatment have incontestably proven that to steadily breathe fresh pure air is a natural preserver of lung integrity and normal oxygenation of the blood current. Therefore fresh pure air breathing is a natural restorative in the early stages of lung degeneration by tuberculosis. Then the obverse of this proven fact demonstrates the other fact—that impure or dirty air is directly prejudicial to the physical welfare or health of the lung which is kept in contact with contaminated air for the purpose of respiration. So again and again we come to the simple solution of what had so long been a complicated and mysterious problem. But while fresh air sanatoriums may and do demonstrate the principles of a great defense against consumption, these institutions will not save the population from the ravages of the great white plague. To suppress tuberculosis broadcast, the medical profession of the world, for the next quarter of a century, will have to enlist the full weight of available ability and opportunity to daily digest the radical elements of reform in lung hygiene, and also make persistent application of the same in all families of their clientele, in order to displace the erroneous habits of life that have been grounded into the apprehensions and mistakes of common humanity. If, as I believe, the line of imitative doctors in the long past, through defective comprehension progressively lost the world to the blight of consumption, then the doctors of the present and of the future must rally to the rescue and redeem the world from the despair of at least a century of deplorable medical defeat. Until all families, mothers and children, everybody, learn that no lung and no one's blood have a consistent chance to continue in healthy condition except through the instrumentality of wholesome breathing-air, continued breath by breath, working upon and through the lung, can the progress of tuberculosis be effectually checked and humanity ransomed from the scourge of constitutional waste and decay that drugs do not and cannot prevent. I cling to many phases of this important theme because they all appeal to the vital interests of every family, every citizen, every new birth in the land. The book of Isaiah says: "With precept upon precept; line upon line; here a little and there a little; with stammering lips will he speak to this people;" and I speak now in behalf of population who never have learned the intrinsic values of fresh and pure air as the only defence against consumption. It is such a pity! although God gives us the immensities of sanitary air to breathe, mankind deliberately spoils so much of it before it enters the lungs! A personal allusion may be pardoned. When I start the gaslights in my office, invariably do I lower one or more windows in order that the inflow of fresh air oxygen may counteract the toxic results of the combustion of gas and thus leave my lungs uninjured. The oxygenation of my blood enables me to keep comfort-

ably warm with much less fuel heat. Again, to protect the lungs from the blight of dust and gas from furnace fire, my home is equipped with hot water system of keeping it warm in cold weather. Ventilation throughout the house is constantly looked after. When cooking or other domestic work is being conducted in the kitchen by any one, I see that one or more windows are lowered so that fresh air is constantly present to defend health. Personally I remain away from crowded places where breaths and gaslights spoil the air in a few minutes because people object to opened windows lest a draft be perceived or "a cold" anticipated! I remain away from weddings, because usually the crowd is select, the windows shut, the shades down, the gaslights in a glare, the breathing-air oppressive, every throat and lung turgid with the intensities of the interesting situation. Because of the sensitiveness, furthermore, of my own breathing organs, I avoid the locomotive gases and their fuel debris of travel by steam cars as much as possible. My own case is only an example to multitudes who need personal caution. There are many ways of prolonging life and comfort through sanitary observances. To many I consider long journeys by rail great exhausters of nervous energy. Such journeys in many cases of depressed state of health have shortened life. They have proved a suicidal race toward death. Temporary rest in a comfortable and sanely ventilated room, or a recreative seat in the fresh air of a handsome park, are naturally more protective than riding in a chair in a gassy parlor car and creeping into a bunk in a stuffy sleeper for a bed. Sitting out theatrical performances and tedious operas in crowded audiences is a poor way to defend the lungs against consumption. It means hundreds of re-breathed breaths, late hours, unnatural wear of body and mind, preparation for the penalty of wasted health and earlier death. I once had a young man consult me because of loss of strength, sore chest and haunting cough. I found he was going to popular opera nearly every night. I advised him to suspend the wear of his attendances at opera, but afford himself more rest by keeping better hours. He replied that he came to me to get something good to help his cough, but he had resolved to hear every opera singer who came to our city till the end of the season. In six months more he was buried because of hasty consumption. Every night's outing in the crowded auditorium seemed to give him "fresh cold"; but every night thus spent deepened the poison in his system, increased his debility and waste of flesh, hastened the end of all his possibilities for future enjoyments in life.

Another case in point. One Sunday a few years ago I was called to see an intelligent young married man whose wife had become anxious about him. He was losing in weight, had a worry of cough and pains over left chest. I found one lung disabled and lacking resonance. He was a dealer in cheap furniture and carpets on instalment plan. I told him that I must visit his place of business in order to solve the problem of his daily breathing-air environment. His store was a doleful sort of place, damp, malodorous with the smell of furniture varnish and carpet dyestuffs. His business desk was located close beside a cast-iron cylinder heating stove in the rear end of the store-room. The angles in the long smoke pipe from this stove, also the collected soot at the bottom of the distant flue caused the

draft of the fire he sat by for book keeping, etc., to be defective and injurious. I urged him to clear his stove draft with no delay, also to remove his desk to greater distance from the stove. I then visited his bedroom. His wife had complained that he had sweats every night, would not allow a breath of air into their sleeping room for fear of "catching cold," that the two children became croupy so often, and before morning she felt half smothered and miserable. I devoted an hour in going over the change in conditions and the reasons for doing so to make the air inhaled sanitary for all. I earnestly advised the husband to leave the store in the care of his wife, and, it being winter, to go to Old Point Comfort, where I knew the air was bland and pure, and remain till spring to save his lung. He accepted my advice, and I conducted his case there by correspondence. He made the genial acquaintance there of a young priest with whom he went sailing and fishing, spent pleasant hours, grew steadily better, and returned home in early spring feeling like a new man. He resumed his usual business and dropped out of my care. Before the end of the following winter, the furniture merchant broke down more seriously. His home physician then in charge advised consultation with a prominent college professor who was then so technically up in theoretical pathology that his ken never hovered to the practical plane of comprehending the blight of fuel gases in homes and business places. After a few visits this wise professor decided that the gentleman must go to a sanitary winter resort in North Carolina. The journey was made by railroad—in itself one of the worst experiments for a consumed set of lungs. After moping around a few weeks among other invalids, the patient discerned that he had been growing weaker every day, and that he would be better off at home. It was an early warm spring day, for that climate, and after getting his trunk started, he hastened along to walk to the depot, collapsed before he got to the station, and his body was shipped home in its casket. This case illustrates another lesson of the inconsiderate folly of shifting patients who are in an advanced stage of consumption to the ordeal of a gritty and smutty railway journey from their homes to distant resorts of the afflicted in the land of the stranger. Such tedious and exhausting trips are no defence to the debilitated consumptive. Better it is indeed to build a shack on a sunny side-hill in open air, with chunks of logs planted for foundation corners, with the ground floor three feet above the earth to allow freedom of ventilation beneath the floor—and thus seek pure air near home—than to travel a weary distance to find nothing better.

Colorado for the cure of lung disease was, for a time, the popular acclaim by enterprising promoters of Western resorts whose far-sight coveted incomes from the anxious health-seeker. California also waked a boom for the return of part of the gold that had previously been washed from her soil and distributed to other commonwealths. A young dentist, whose first pulmonary hemorrhage began at the operating chair, rapidly run into incurable consumption. His daily work-room environment had undermined his lungs and vital energies. When he had sufficiently improved, I personally accompanied him to his home forty miles from the city. About a month later it was talked into him that if he ever expected to get well he should go to Denver. Promptly he started on his long weary trip by gassy

steam cars. By the time he reached his hoped-for haven of relief, he had become so prostrated that he could remain but one night, and turning round next morning began to retrace his long journey, as he expressed it, to get home again alive. In five weeks I received notice of his funeral. Some years ago I had a young lady patient who was going into gradual decline by consumption. For a year she had held position in a stuffy, crowded department store here, but failing health compelled her to give it up. A great Christian Endeavor convention was to be held in San Francisco. Delegates from Philadelphia were listed for the journey at reduced rates round trip. My patient took enthusiastic notion to accompany the delegates because they said that the California air would surely help her. The weather was at heated term, but her wish was gratified, the expense means provided. That fearful tour across the country with the gassing locomotives and stuffy steam cars so rapidly disabled her that she could not last the outgoing journey through. She never reached San Francisco. She was placed in an obliging homestead by the way, died and was buried in upper California. Three years ago an admirable young business man of my acquaintance, who had held a very responsible position as head book-keeper for a prominent department store in this city, broke down in health. One said it was consumption. Another said it was nervous prostration. It was thought that the rest (REST) of a trip to Denver would restore him! He closed out his own home, sent his two children to his father-in-law's home during absence, took his wife along, and made the exhausting journey to Denver. He, also, at once turned back lest he die there. By the time he again reached home, all hope was gone. In a fortnight came the end. Write it down as common sense mercy for invalids suffering from debility, prostration, consumption, as you value the blessing of life and comforts of home, do not let them undertake long journeys in steam cars.

1726 North Twenty-second street.

An infantile paralysis epidemic recently assumed alarming proportions in New York City; there were under treatment in the various hospitals between 300 and 400 children who had the disease well developed. Most of those recovering will be hopeless cripples for the remainder of their lives. There were at one time seventy-five cases under observation in the Hospital for the Relief of Ruptured and Crippled; during a fortnight fifty children affected with paralysis had been carried to this institution by their parents. Dr. J. T. Terribery, chief neurologist of this hospital, with his associates sought during this epidemic for the germ of the disease, but ineffectually, although several hundred cases were examined. The largest percentage of cases have come from the congested lower East Side; and the examiners have been especially interested in these cases because of their belief that the germ thrives best in the filthy conditions which obtain in certain overcrowded districts. In addition to these hospital cases there were undoubtedly an equal number of cases being privately treated; the disease is of course not confined to the slums. The area of epidemic included part of Pennsylvania and New Jersey, and possibly more distant sections, especially the rural ones, have been visited by the disease.

DIET IN TYPHOID FEVER.

BY SAMUEL HENRY KANNER, M.D., NEW YORK.

THE typhoid patient is subjected to prolonged wasting fever and toxæmia for many days, so the question of diet is of paramount importance.

In typhoid the secretion of saliva is greatly diminished, therefore mastication is difficult and the preliminary digestion of carbohydrates is faulty. There is a lack of gastric digestion because of a diminished secretion of gastric juice, which in all cases is considerably changed in character. The hydrochloric acid is always decreased in amount and oftentimes is absent. There exists an atony of the gastric walls and glands. Digestion and absorption from the intestines does not occur as readily as in health or as in many other conditions because of the lesions peculiar to the alimentary tract in this disease.

Having thus briefly outlined our problem, we may properly proceed to the consideration of diet. Careful nursing and the most painstaking care in diet are the principal factors in the intelligent management of typhoid fever.

Fully fifty per cent. of deaths from typhoid are due to asthenia from the severity of the infection. Less than thirty per cent. of deaths are due to either perforation or hemorrhage. Hence the most important feature of treatment is the employment of such a diet as will maintain the general nutrition of the patient at the highest possible standard, will conserve his strength and vitality, and will prevent complications, sequelæ and secondary infection as far as may be possible.

A mixed diet, consisting of fats and carbohydrates as well as proteids, is as essential in the proper dietetic treatment of fever as it is in health. I venture to state that those who have studied the metabolic and katabolic processes in typhoid will agree with me that the patient, subjected to such an exhausting and wasting disease, requires a diet which will furnish as many calories as the diet required to maintain an average man in good health doing moderate work, in proper physiological condition. A diet, therefore, furnishing about 2,200 to 2,500 calories in a palatable, unirritating and readily assimilable form is an ideal one.

We must avoid such foods as will enter the intestine without undergoing the normal changes in the stomach, and may act as a direct irritant of the affected tissues, and also undergo fermentation and decomposition, thus increasing the gas in the intestines and producing toxins which may be absorbed with deleterious results.

A liquid or semi-solid diet is to be employed rather than one in which solid food predominates, because it is more readily attacked by the digestive secretions and hence more readily digested and assimilated.

In typhoid, as in all other exhausting and wasting diseases, we give albuminous foods to make up for the body loss. These consist of eggs, milk, broths, minced meat, meat juices, and the gelatinous substances which are "albumen-sparing."

The occasional necessity of artificial digestion of proteid foods is the more readily recognized when we recall the investigations of Hoppe-Seyler upon the quality of the gastric juice during febrile conditions, for he found hydrochloric acid either greatly diminished or absent. Uffelman has found that the peptone-forming

secretion is entirely absent.

Carbohydrates and fats must also be used, as they add energy to the body, and in their combustion protect the albuminous tissues.

Hoesslin has satisfactorily determined that the fever in typhoid is not increased by the amount of food taken. Klemperer has shown that the food is properly digested, provided it is properly prepared, not given in excessive amounts, and at proper intervals, and if the deficiency of hydrochloric acid is made up by the administration of hydrochloric or citric acids. As to intestinal digestion in typhoid, he has proved that practically 90 per cent. of 100 grammes of fresh, easily digested fat and an equal per cent. of 100 grammes of albumen is absorbed. Carbohydrates are rarely found in the feces unless excessive amounts have been taken. Klemperer has also proved that by giving enough albumen the nitrogenous waste in fever is less than when the amount of albumen is less.

The digestive functions seem less affected when the temperature is not high. Therefore, it is judicious to give the more substantial meals in the morning hours, when the temperature is comparatively low.

A routine diet is to be avoided, and the individual patient, rather than the disease is to be considered. Feed the patient with reference to his digestive and assimilative power, as well as with regard to his temperature curve. The aim should be to give sufficient nourishment, not the maximum amount of food the patient will take. The stools should be examined for undigested food remnants, and by the result of these examinations, we must be guided.

In mild cases it is inadvisable to arouse the patient from sleep for feedings. Sleep is nature's greatest restorative agent. But when there is stupor, the patient should be aroused for food at regular intervals night and day.

Thirst should be fully and freely gratified. Even when the patient is apathetic or delirious, water should be freely given. At Johns Hopkins Hospital, it is customary to give a minimum amount of three liters of fluid a day. Cool water, iced tea or coffee or lemonade may be used and fruit juices, especially orange, are permissible in moderate amounts in the absence of excessive diarrhœa.

Milk contains the necessary constituents that make it an almost ideal article of diet. It contains proteid, fat, and carbohydrate with a small amount of salts, all the ingredients required to sustain and nourish the body. The diuretic effects of the lactose and water in milk aid in the elimination of toxins. It should constitute the most important part of the diet provided it agrees with the patient.

The stools should be most carefully examined to see if the milk is entirely digested. If masses of curds are seen in the stools, it is best to substitute, for part of the milk, animal broths or beef juice, all of which may be made very palatable by the addition of fresh vegetable juices. Some patients will take whey or buttermilk when the ordinary milk is distasteful.

Lime-water, barley-water, rice-water, albumen water or plain boiled water may be added as diluents to the milk to prevent dense curdling in the stomach. These diluents will also give good results when properly employed in those cases where the undiluted milk produces an uncomfortable, distended abdomen with fla-

tus. If this measure fails to arrest the distension, it is imperative to suspend the use of milk for a time and substitute other forms of nourishment. In such cases, clear soups, barley-water, albumen water, fresh eggs (raw or soft-boiled), chicken or mutton broth, and coffee with cream may be employed.

It need hardly be said that fresh milk from the best obtainable source is to be used. About one and a half liters of milk are usually required for each twenty-four hours. It should be administered at stated intervals in quantities varying from four to eight ounces every three hours, as it requires about that time for the digestion of milk.

I usually add about fifty grammes of milk sugar and about 100 c. c. of 20 per cent. fresh cream to each litre of milk. In this way I secure a milk whose nutritive value is largely augmented and whose palatability and digestive quality are not in the slightest impaired. The addition of from ten to fifteen grains of sodium chloride to each feeding of milk is, in my opinion, a most important feature. It not only renders the milk distinctly more palatable but it has important physical, chemical and therapeutic properties in aiding the digestion of the proteids in milk. It renders the curds less tough, and the casein more readily attacked by the gastric juice, and also is essential in the elaboration of hydrochloric acid in the stomach.

We may vary the taste of the milk by the addition of tea, coffee, cocoa, vanilla syrup, etc., to prevent the patient from taking a dislike to it.

Important points to be remembered in the use of lime-water as a diluent, are these: Brunton believes lime-water would prevent intestinal hemorrhage. Wright asserts that by increasing the coagulability of the blood, the occurrence of thrombosis is favored. I think Brunton's view is correct, and accordingly employ lime-water as a diluent quite regularly.

Provided the quality of the milk is good, I give it raw, but under slightest doubt or in the presence of excessive diarrhoea, I order it sterilized. It is to be remembered that sterilized milk constipates, the lactalbumin is partly coagulated and the casein is rendered less coagulable by rennet and is acted upon more slowly both by pepsin and trypsin. I often deem it advisable to add one or two raw or soft-boiled (one and a half—three minutes) eggs to the daily diet, and have never seen any untoward results.

Soups and broths are not very nutritious. They are, however, quite stimulative and are useful when milk is to be temporarily withheld. They are not adopted to prolonged use. I usually add somatose, carni-pepton, tropon or plasmon to soups and broths. If these are well tolerated, and the patient asks for more food, he is given wine-jelly, blanc mange, custards, milk and toast, and crackers well moistened in milk. Mention should be made of Seibert's utilization of a thin pea-soup, as a method of administering a highly concentrated nitrogenous food.

Alcohol has been overlooked by many as a food in typhoid. I use it as a stimulant, when required, in amounts varying from two to twelve ounces in twenty-four hours, as the occasion demands. If the pulse becomes stronger, if the urine increases in amount and if apathy and stupor clear up, and if the tongue becomes moist, its use is beneficial. If other results, it is harmful. The experiments of Neumann, Chittenden and Geis prove conclusively the food value

and the nitrogen-conserving value of alcohol in moderate amounts and this should be constantly borne in mind. But I do not advise its use as a food unless its use is indicated in a stimulant. It is best given in milk or with albumen-water, so that it may assist digestion.

Meat in the form of well minced lean beef from which all fibre has been carefully removed, or chicken boiled to a jelly with rice is often permissible. I do not suggest its use indiscriminately, but if the patient is ravenously hungry, as so often is the case, and desires meat, and his physical condition agrees with his desire, I make no hesitation about giving him meat once a day in quantities varying from two to five ounces.

In the last decade the question of a liberal diet in typhoid has been often and earnestly discussed. Beginning with the very able and epoch-making article of A. J. Barrs,¹ many papers have been written and discussions held by able clinicians both abroad and in this country, giving their experience with a more liberal diet. It seems to me that their conclusions coincide and that a fuller diet is warranted and advisable.

Barrs stated: "I can conceive of no method of diet more calculated to delay healing and so favor perforation than the prolonged period of starvation in convalescence. Solid food does not increase danger of perforation. We should enforce no further departure from the normal diet in health than the disease itself enforces by the inevitable loss of appetite and the impaired digestion of the pyrexial state. When a patient suffering from typhoid expresses a genuine desire for solid food and it is confirmed by his physical state, I give him such food as he can take, especially meat. I do not suggest, much less insist, that a patient with a dry, shrivelled tongue, teeth covered with sordes, semi-comatose from pyrexia, and indifferent to food and probably loathing even milk, should be fed on solid foods. Such a proceeding would, in my opinion, be as ridiculous and unjustifiable as to insist that a man, who, with a clear mind and a full appreciation of his condition, says he is craving for solid food, should be denied." These views are mine exactly. I am thoroughly convinced that the cause of perforation lies, not in the character of the diet, but in the nature of the ulcer. I am convinced that intestinal hemorrhage is not more frequent in patients on a liberal diet than in those on a restricted, exclusive liquid diet.

Barrs based his conclusions on his observations in thirty-one cases, of which three died; and to these three patients he had never been able to give a liberal diet. He lost no case in which careful feeding was adopted. Relapses occurred in two of thirty-one cases (six per cent.).

Fitz² concludes that a considerable variety in the diet may be permitted not only without detriment, but with positive benefit to the patient.

In patients fed on a more liberal diet, the loss of weight is less, and the general condition at the beginning of convalescence much better than in those cases where the diet has been exclusively liquid.

Shattuck³ reports a mortality of ten per cent. in 233 cases on exclusive milk diet, while the mortality in a large series of cases was but 8.45 per cent. on an enlarged diet.

A. H. Smith shows that in 563 cases hemorrhage, perforation and relapse were no more frequent among the liberally fed.

Peabody, Manges,¹ Kinnicutt,² F. E. Hare,³ and Clayton⁴ are pronounced in their advocacy of a more liberal diet. Their statistics speak most eloquently for it.

I have never seen any serious consequences as a result of a careful, liberal diet. It is my positive belief that prolonged severe restriction of diet has almost certainly killed typhoid patients. I have seen cases of relapses and prolonged convalescence with continuous elevation of temperature, which I have regarded as cases of inanition fever due to undue and unwise restriction in diet and these cases have responded very quickly and in a most gratifying manner to a carefully enlarged diet.

I think that the convalescent stage of typhoid has in the past been unnecessarily prolonged in many cases by the withholding of solid food. There are cases innumerable where a moderate temperature will persist for weeks, and be due largely to weakness and lack of elimination. It has been forgotten that a sufficient amount of food is necessary to insure the proper performance of the vital functions. As Manges so aptly says: "A sufficient amount of nourishment is a most important stimulus to the heart, kidney and nervous system, and to the development of immunity." The administration of a more liberal diet and of solid food in small amounts often relieves the exhaustion and enables the patient to make a more rapid convalescence. All statistics available show the sequelæ of typhoid, such as abscesses of various kinds and thromboses to be much more frequent after typhoid fever treated with an exclusive milk diet than when treated with a more generous and varied diet.

Finally, I quote the words of Manges about the use of the fuller diet in typhoid fever. "It is important that all articles of food be thoroughly cooked, carefully minced or strained, and as sterile as possible. The patient must thoroughly masticate the food. Furthermore, the liberal diet must not be given to all patients." If the patient desires more food and his condition coincides with his wish, the quantity and variety may be safely increased. This is a very simple rule and comprehends the subject of the more liberal diet in typhoid.

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Dr. Tafel, a Thibetan explorer, reports that the cocoanut is regarded in that country as one of the most potent of medicines and is treasured as all things are that are precious and rare. On one occasion he saw coming "from God knows where" cocoanuts passing into the hands of buyers at sixteen rupees (nearly \$8) apiece. This should interest enterprising American cocoanut growers.

THE PRACTICE OF OBSTETRICS.

BY W. T. MARRS, M.D., PEORIA HEIGHTS, ILLINOIS.

THE practice of obstetrics is quite different from our conception of it gleaned from text-books or that gained from lectures when we "pressed pants" on hard benches during our callow college days. In my weak way I shall call attention to the manner in which practice of this art is carried on in many localities and between the lines shall try to drop helpful, practical suggestions. As this article may partake somewhat of the reminiscent and retrospective I will preface it with an apology for the prominence of the *ego*, for it is hard to tell a story in which you are your own villain and hero and keep in subjection the ever-recurring "I." Like that nutty ghost, it will not down.

For a number of years I lived in a small town in a farming community and here it was that I received a pretty good training in the accoucheur's art and the management of parturient women. I believe that in such a location the average doctor gets the main part of his obstetrical training, for in the cities and the centers of the populace this work is rather allotted to a few instead of being generously divided up among the common lot of medical men. In and about the cities, too, the midwives find their best picking so that on the whole this branch of medicine does not appeal to the city doctors in the same manner that it does to those more remotely situated from metropolitan centers. The country physician in isolated regions away from a base of supplies and skilled assistance is by sheer necessity compelled to meet and master almost any obstetric complication that may arise. Depending thus upon his own resources he in time acquires a confidence and skill born of rough experience that renders him able to cope with almost anything that may come before him. One of the most trying things about the practice of obstetrics in the country is long and tedious hours of waiting. According to medical jurisprudence the physician is not justified in leaving the woman after labor has set in, although days may intervene between the incipency of the first stage of labor and the termination of the third. When we are moored with such a case amidst uncongenial surroundings with not even an almanac to read, weary of body and mind, fatigued and hungry and nothing our patrons can serve us to stay our pangs of hunger is fit to eat, then it is that we are inclined to hurl anathemas upon our alma mater for ever conferring upon us the degree of Doctor of Medicine. Many a time in my whilom career have I made belief that I was partaking of a meal which would be served up in the one room which constituted kitchen, dining and living room, as well as accouchement chamber, while I wrestled with my naturally rebellious stomach in the endeavor to keep it in subjection. On one occasion I remember the space under my patient's bed served as larder and all the victuals prepared were taken therefrom. I recall especially that the jug of sorghum produced from this lair was commented upon at the table, and I was earnestly requested to try "those molasses." On another occasion after riding several miles on a cold November night I arrived at a dirty hovel to assist in ushering into the world a little piece of humanity who would probably grow up to be as shiftless as his progenitors. As there was a lull in business I sat around

the stove dozing, the ride having made me sleepy. The coffee-pot on the stove kept boiling away something that had perhaps once borne some semblance to the cup that cheers but does not inebriate. The old lady who bore the relationship of mother to my patient invited me to drink some of this fluid, extending her cordiality to say further: "Doc, there's a bucket of turnips behind the stove; maybe if you eat something it will wake you up and make you feel better." The raw turnip being 98 per cent. water and hard to digest at best, imagine what a delectable luncheon this would be at the unseasonable hour of three A. M.

People living in rural districts as a general rule seem to appreciate the services of the doctor, although there are many exceptions to the rule. One striking exception presents itself to my mind. On a cold night I was called to a hamlet a few miles away to assist a brother physician who was anchored to a disagreeable case. The family and all the attendants were descendants of the Emerald Isle and had, all of them, acquired enough earthly goods to make them autocratic and dictatorial. Upon entering the house I thought to warm my hands a moment and get a little cursory knowledge of the case from the attending physician, when I was handed something like this from the patient's mother: "If ye be agoin' to do anny ting ye'd bether be afther doin' it for there is plinty of docters can and will do someting." The case progressed slowly, eventually requiring forceps. During the interim the general trend of the conversation was such as to show up the stupidity and assinenity of the attending doctors and the brilliancy of Dr. X. whom they could not get. We were regaled by such remarks as "Dr. X. never lets his patients suffer this way," and "Dr. X. uses a 'spreader' and soon gets 'em out of it," etc. All the time my confrere silently chewed his tobacco and said nothing. On the way home I asked him how he could so patiently endure their slurs and insinuations. He replied: "I let them pay for their talk. I add just five dollars extra to their bill for their vituperative remarks and you are a fool if you don't do the same thing."

Puerperal convulsions is a thing to be dreaded at all times, but it is more appalling when far removed from assistance and when not supplied with the necessary remedies and equipments. Illustrative of this I recall the predicament of a brother doctor who was attending upon a primipara about sixteen years of age out in the country several miles. The case had progressed satisfactorily until the head had entered the vagina when convulsions occurred and all the woman's energy was split up, the greater part of it going to produce the convulsions. The doctor not having forceps with him, I was called to assist him. Instrumental delivery was not a difficult matter, but the babe was dead, it weighing between 13 and 14 pounds, being the largest newborn child I have ever seen. *Veratrum viride* was left with instructions to give it to the point of lowering the pulse and producing a moist skin if there should be a recurrence of the convulsions. None occurred. No matter where the physician is located it pays to be prepared for emergencies which are so likely to occur without seeming warning or provocation. I shall later in this article call attention to emergency drugs and equipments as they have been impressed upon my mind by clinical experience.

Post-partum hemorrhage is an obstetric accident that

makes the doctor get exceedingly busy, no matter where he may be located. The suddenness of its onset and the pell-mell and excitement of attendants often makes it a difficult matter for the medical man to preserve his own equilibrium and do the right thing at the right time. Prompt and judicious action will be rewarded by a favorable termination in most cases, for it seems that Nature is very kind to the parturient woman. The following case may be taken as being somewhat typical: Several years ago I was engaged to attend upon a woman in another town at her expected confinement. My consent to do so was given with reluctance, for I think it is rather audacious to go into the very doorway of other physicians. But the doctors in this town had been, it seemed to me, somewhat exacting in their demands for ready fees from this particular family, who had met with financial reverses. The woman was slender and of tubercular type, and like nearly all of this description the labor was terminated nicely and expeditely; but in a few minutes as our attention was diverted toward the baby and other matters we chanced to note that the woman's face blanched and she soon assumed a cadaverish look. The blood poured from her in a diminutive torrent, going through feather-bed and mattress and making a pool on the floor. It seemed strange that a little anemic woman could contain so much blood. Soon the special senses were abolished and she became unconscious, then apparently lifeless. Great beads of perspiration welled upon her forehead and she was cold and clammy, with no pulse discernible. It was the very picture of death and hopes of returning animation seemed indeed futile. What did I do? My first thought was that I should not have gone butting into the other fellows' territory, but now that I was up against a tough proposition I would fight it out alone and at least make some effort toward the woman's restoration. I hurriedly gave a hypodermic of morphine and atropine, for I believe these remedies exert a salutary effect in nearly moribund conditions as well as having a central control over hemorrhage. While this was taking effect I cleared clots and debris from the vagina with my right hand, while with my left I kneaded the uterus through the abdominal walls, which in this case were quite thin. As I busied myself with this procedure I had attendants prepare a syringe with hot water and a stream was thrown against the cervix, ending up with a spray of vinegar. There was a slow response to this treatment and soon the patient showed signs of life, the hemorrhage subsiding. She was now given glonoin on the tongue, which seemed to be unconsciously gotten rid of. She was rubbed with alcohol and artificial heat placed about her. In an hour or so she was able to swallow brandy, and later, ergot. The woman was nearly exsanguinated, but made a slow recovery, and is, I think, alive to-day. The point worth emphasizing in this case is that no matter how desperate the hemorrhage may be we should be unremitting in our efforts and should be resourceful and inventive in the selection of remedial agencies. It should be our first endeavor to get the uterus to contract, for this will close the flood-gates which are open and permitting the woman's vitality to ooze away. If the physician cannot accomplish this in any other way, he should, as a dernier resort, introduce his hand into the uterus and remove clots, while his hand acts as a foreign body and that muscular organ is excited to contractions in the attempt to throw it out. Cold, even

ice, may be applied to the abdomen and to the cervix to stimulate the uterine body. Of course there is danger of infection, but it is better to be infected than dead.

The elevation of the foot of the bed and of the woman's hips as a safeguard against hemorrhage is of doubtful utility, although this suggestion is frequently seen in print. It may have some psychic effect akin to that of putting an old ax under the bed to prevent hemorrhage, or a pail of water to prevent night sweats. It is true that if bleeding is expected recumbency makes for the safety of the woman as gravitation is worth reckoning with, but if the muscles are put in a strained and unnatural position they are not permitted to contract normally. Upon natural contractions must the arrest of a uterine hemorrhage depend. Styptics may occasionally be useful. It is as necessary, too, to keep the patient alive as it is to stop the hemorrhage.

Patients are usually grateful to the physician if he has been able to turn matters to a successful termination, but the element of chance enters largely into the practice of obstetrics. Honors are not always balanced as they should be. Where we sometimes camp on the grounds and stay with a difficult case until it is finished we do not get the credit that is accorded us for a few minutes' attendance upon an expedite labor. But the law of compensation usually operates and where we lose in one we gain in another. This case illustrates my point; I was called at midnight to see a primiparous woman. After my arrival on the scene I learned that an old doctor had been in attendance all night, but the family, being rather ignorant, concluded that the old fellow did not understand his business, so they literally drove him from the house. I found an os pretty well dilated, but the pains were lagging, so I gave ten grains of quinine; also gave her a rectal injection which removed a mass of irritating feces. We let her assume a kneeling position over a chair placed in the bed and voluminous pains at once ensued, the child being born within a half-hour after my arrival. In this case the other fellow did the work, bore the brunt and got the abuse, while I stepped in at the right moment to have my praises sung good and loud. Such events as this are being enacted over and over every day. It's a part of the business.

As this article is not being written and paragraphed in sequences I shall, as it occurs to me, speak of placental deliveries. A number of times I have been called for this purpose, the labor having been completed satisfactorily except that the after-birth refused to budge. I think my worst cases of hemorrhage and infection have been where there has been a tardy placental delivery. Our authorities in this matter speak of allowing the woman a good interval of rest and recuperation between the two deliveries, but it has been my experience when I have tried to be conservative and deliberative in extracting the placenta to often have some trouble. If the uterus lapses into a state of passivity it is sometimes a difficult matter to spur it to action. If the placenta happens to be one of those whose fabric is quite fragile it may soon begin to disintegrate, thus lessening the facility with which it is all expelled. I think that ordinarily it is better to remove the placenta about as soon as the uterus can be coaxed into a contraction and the time-honored ergot is here very serviceable, as well as a snugly-fitting band. Some modification of the Crede' method should be employed and

the woman should be instructed to blow into her hands, as this relieves the tension in the abdominal muscles.

Every one who practices obstetrics has experiences unique and amusing, pathetic and tragic. Once I was called into a house near me to relieve a visiting lady whom I had not seen before of a case of "colic." I left an anodyne and took my departure. Yes, it's the same old story and has been committed by many who read these lines. We all ought to be booted for the blunder, but it is being done over and over. The next day the wash-woman showed me a small fetus and I later had to appear before the grand jury and tell what I knew about the matter. On another occasion a man came rushing to me stating that his wife had a "d— of a belly-ache," and he resented my belief that she was pregnant. When I arrived at the house I found the woman on the floor, fully dressed, and a lusty baby lying between her legs. This woman, while young, was already the mother of one child, but she contended that she did not know that she was pregnant, never having had a sign or symptom until she had her precipitate labor. I do not know whether the woman lied or not. Women will misapply the truth about matters concerning their generative function when they are perfectly veracious on other things. The physician who has been in the harness long has had a case or two of phantom pregnancy. They usually occur about the menopause. The element of suggestion is a factor in most of these cases and there is an ardent desire for pregnancy and maternity. One case of this kind in my experience had been troubled with "morning sickness" for some time, the abdomen enlarged and at the time I was called to confine (?) her she was having pains and a slight show of blood. In almost every respect the case looked like the real thing, the baby clothes were in readiness and a woman was present to make the toilet of the baby that never came. It was the hard and leathery os that first suggested to my mind an empty uterus and further auscultation failed to reveal any fetal heart sounds. The abrupt cessation of the menses and a vivid imagination accounted for it all.

Another class of experience relates to illegitimate births. It has been my misfortune to several times be called to attend upon girls who have loved well and not wisely. Here is where many a sympathetic medical man has blundered in his attempt to relieve them too soon of their burden and to screen or mitigate their disgrace. Who of kindly nature does not feel inclined to hear these pleadings and render the assistance sought? But the one word of admonition to all who feel thus tempted is—*don't*. The reasons for not interrupting a conception are many. It is contrary to God's law and to man's. God's law should be considered first and man's next. Human nature is weak, and the very one you would befriend may turn upon you without provocation. Let me emphasize this assertion by this circumstance: Recently an unmarried woman here sought and procured an abortion. When she saw that she was going to die anyway, she made a dying statement incriminating the old doctor who performed the operation. The jury acquitted the doctor on the ground that too long a time had elapsed between the time of the alleged abortion and the girl's death. If called upon to attend unmarried women in child-birth the physician should make up his mind to be both truthful and discreet. Some years ago I was called

one night to the home of a respectable farmer several miles in the country and upon my arrival found the daughter of the house *enceinte* and in labor. The mother stated that the girl had been "raped" some months before by a young man of the neighborhood while on the way home from a show one night. A long time to suffer in silence for such an offense! No one was present except the members of the family and the house was on an unfrequented road. They implored silence on my part, stating that of course the child would be dead, etc. I remained reticent and kept my own counsel, for already I had several years of experience to the good. When the babe was born it was alive as I expected, although it seemed to have a feeble lease on life. On leaving I admonished the family to care for the child and give it a chance for its feeble life, and that if the worst happened to it to report the same to me immediately. In about twenty-four hours the father of the girl called upon me and stated that the child was dead and I cleared my own skirts by reporting both a birth and a death. Some months later I was told by a man of that locality that an infant had been born on that place and it was buried in the garden, the dogs having dug it up and toyed with it. In this case I think I did the right thing. I kept my lips sealed and furnished no scandal for the neighbors, and at the same time I complied with every legal requirement. By the way, I afterwards learned that this young lady had been pregnant on a previous time and had procured an abortion.

I have thus far dealt mainly with the seamy and irregular side of obstetric practice and will now turn rather to the clinical, remedial, etc. Nothing makes for the success of the obstetrician so much as a pleasing personality, it being naturally assumed that he has reasonable knowledge and skill. The man who is not scrupulously neat and clean is a menace to his patient, for she stands in danger of becoming infected from his touch. The psychic effect of the personality of the physician has much to do with how the woman will get on. It pays to please her without catering to her whims and foibles. Put yourself in her place and be a woman (in your mind) for a little while. It will do you good. A woman may silently tolerate a boorish physician, but she does it under protest and because she is good-natured. The doctor who is neat, clean, and pleasing in his manners will be tolerated even though his morals be questioned. But the man who is not a gentleman all the way through should never be accorded the sacred duty of assisting women in the hour of travail.

Suggestion in some form is valuable stock-in-trade for the obstetrician, and a vein of it should actuate his whole conduct, as he ministers to the woman in this trying hour. I do not mean hypnotism, although suggestion under hypnosis works well in many cases. But the quacks and irregulars seem to have almost gotten a corner on this adjunct to medicine and have caused it to fall into disrepute. Women in labor are very suggestible and every time medicine is given or mechanism of any kind employed the salutary effect of it should be commented upon and the mind will readily utilize it for good if it be accompanied by the proper suggestion. To facilitate the labor toward its close, say to her: "The next pain will be longer, stronger and more effective than the last, but you will not suffer so much from it." Couch this idea in different words and keep

reiterating it until it has produced some effect which it invariably will. Absent yourself from the room when you can gracefully. Your absence is suggestive, and the woman reflects upon your words and the meaning they convey to her.

Chloroform should be in every obstetric bag, for it is certainly one of our best agents to minimize suffering and to facilitate labor. In the great majority of cases it favors dilatation and increases the pains both in length and strength as well as rendering them regular and rhythmical. Only sufficient chloroform should be inhaled to produce slight analgesia and to take the raw edge off the pains, never to the point of complete anesthesia except where unusual operative interference is demanded. While the greater number of cases are very materially aided by slight anesthesia there are occasionally cases in which chloroform does not mitigate the woman's suffering, and in which the uterus is lulled into passivity and a general retardation of the labor. If the anesthetic acts as it should a dilatation of the os will soon be evinced. The following case illustrates unusually prompt action of chloroform: Several years ago I was called to see a young woman in labor with her second child. There were some pains with an os dilated about the size of a nickel, but the pains seemed to be radiated and exerted little dilatation. In my mind I conceived that the labor would last four or five hours, unaided and alone. I let the woman inhale a little chloroform, thinking thus to allay some of the "false pains" in her back. Immediately a hard, expulsive pain followed, and soon another. The child was born within five minutes from the first whiff of chloroform. The Abbott-Lanphear method of anesthesia is now being employed by a good many obstetricians and it is said to combine both safety and efficiency.

Ergot is seldom advised in obstetrics only as a post-partum remedy or when there is complete dilatation of the birth canal, as evidenced by the head being two-thirds born. Conservative physicians decry the use of ergot in strong terms. It was the bold and indiscriminate use of this drug that caused it to fall into such disfavor. Many of the museums of medical colleges have in alcohol a ruptured uterus which they show to the students as being the result of ergot having been administered out of season. I knew an old-fashioned doctor who gave ergot in *tablespoonful* doses in every case, and he was sent for from far and near, having quite a reputation as an obstetrician. I never heard of any deaths to his credit, but doubtless he had numerous cases of ruptured cervix, perineum, asphyxiated babies, etc. I have known a number of doctors who stood well in the profession to give this remedy "on the sly." On one occasion I was tied up with a case several miles in the country and had to remain two days and two nights, with symptoms of a third before me. The os was dilated the size of a quarter of a dollar with pains of an intermittent and recurring order. To have gone home would have been only to invite a speedy return. What could I do but remain? I think I tried to a finish every medicinal and mechanical agency that I ever heard of. The pains could be neither decreased nor diminished. Being nearly exhausted physically, I called for a consultant. He came and suggested a dram of ergot. I consented to this with some misgivings, the woman being a primipara; but the os had now dilated to the size of a half dollar and it seemed that the uterus was in such an atonic condition that the child could

never be expelled. Strong pains soon followed this dose and the labor was terminated in less than an hour with safety to both mother and child. I have frequently given ergot in five or ten drop doses every half hour to promote contractions in sluggish cases, but only to multiparous women who have a capacious vagina and patulous cervix. In large doses ergot is of uncertain action and is likely to produce clonic, irregular contractions. Small doses judiciously given cause tonic contractions and are for the most part devoid of danger. This is not to be taken as a recommendation of this drug in any manner whatsoever, but I do say that the danger from the use of ergot is like that of the forceps—the danger is in the man behind them. Ordinarily it would be about as reckless to give a teaspoonful of ergot to a woman in labor as it would be to apply forceps and go to yanking after the manner of pulling a tooth. Remedies should be judiciously used and not abused.

Macroton and caulophyllin are drugs that are now used quite extensively in labor, as they relieve false pains and strengthen true labor pains. There are a number of drugs that are very useful to meet special indications and to thus help the labor along. As a complete obstetric outfit is quite cumbersome a good many remedies can be carried in the form of alkaloids. There may be occasion to use all of these: Morphine, atropine, emetine, macroton, ergotine, caulophyllin, veratrine, strychnine, digitaline, glonoïn and arbutin. Other drugs often essential to have are: Chloral hydrate, chloroform, boracic acid, carbolic acid, creolin, quinine, vaselin and perchloride of iron. Many other remedies are at times useful.

The obstetric bag should be replete with accessories such as can not be found in the home. Some one has said to go to a confinement prepared for accidents and they will not happen so often.

The following should be included in the outfit: Obstetric forceps and placental forceps, speculum, hypodermic syringe, perineal needles and holder, scissors, hemostats, pocket instrument case, catheter, silk and catgut thread, uterine dilators, antiseptic gauzes and absorbent cotton. The Kelley pad makes for the esthetic features of the case, but it is some trouble to carry so many things. A good substitute for the pad is a number of newspapers folded into a generous thickness which is tolerably impervious to the obstetric debris.

The lying-in woman should not be kept in the prone decubitus too closely and too long, as it tends toward hypostatic congestions and retards elimination. If there be no contra-indications for her so doing, she should arise to use the bed-chamber. The woman should remain in bed the greater part of the time until involution is about complete. Ordinarily cathartics should be given within twenty-four hours instead of waiting until the third day as was the custom of old. Salines and castor oil and occasionally small doses of calomel are the best remedies for this purpose notwithstanding their age. The hepatic and renal functions should have early and effective attention. As a rule it is best to defer the douche until about the time the lochia has ceased. Douching and curetting were given a pretty thorough trial a few years ago, but the results obtained were not generally gratifying, as protective secretions and tissues were removed and infection thereby invited. Na-

ture in a large measure supplies its own antitoxins, and if we are careful not to infect the parturient woman through any procedures of our own, she is not likely to suffer from autotoxemia due to the elaboration of toxins in her own system.

Infantile Paralysis or Acute Anterior Poliomyelitis.—The peculiar blood supply of the spinal cord whereby the gray matter of the anterior horns receives its nutrition almost direct from the anterior spinal artery, exposes this portion of the spinal cord to a more direct attack from infections or toxic material in the circulating blood than occurs in the other columns of the cord (*Practice of Pediatrics, Carr*). The disease is probably infectious; and although isolated organisms have been found in the cerebrospinal fluid, no distinct causative agent has been isolated. Children in robust health are as a rule affected; but not infrequently we get an antecedent history of scarlet fever, measles or gastroenteric disturbances. Traumatism as a factor need not be considered. A child may awake in the morning with a paralysis of a group of muscles or of an entire extremity, or more frequently the disease may come on with fever, ranging from 102 degrees to 104 degrees F., and associated with vomiting and anorexia. Rarely delirium and convulsions mark the onset. The fever lasts at most a few days and may be so slight as to be overlooked. The paralyzed part will be found to be flaccid, with a complete absence of reflexes in the distribution of the palsied muscles; this is a rule without exception. The peronei group are most commonly affected. In the focal zone of the inflammatory process the loss of function will remain complete and permanent. In the perifocal zone where the nerve cells have been altered but where restitution of function is possible, the muscles will, after a few days, begin to regain function until at last, where a whole limb was at first affected, the paralysis may persist in but a single muscle, a group of muscles or only the flexors. The paralysis is always of an atrophic, degenerating type, and after a few days there will be present a slowing of contraction to the galvanic current, with the anodal closing contraction greater than the cathodal; in unfavorable cases the failure to react to increased quantities of the galvanic current progresses until after a few months there is absolutely no reaction. Where the involvement is extensive the limb fails to grow and remains much shorter than that of the opposite side; the circulation is defective, the limb appearing cyanosed and feeling colder than the normal one. Where opposing muscles to those paralyzed retain their function various deformities may result, due to the unopposed contraction of the normal muscles. Sensation is not generally disturbed; in some cases the affected muscles may be tender to pressure. The sphincters remain intact; the mentality remains undisturbed. The prognosis should not be made until after a case has been studied for a few weeks. We may, however, assure the parents that the resulting paralysis will not be so extensive as that at the onset. The more limited the paralysis the better the prognosis; but a complete return of function is rare except in the most limited cases. The prognosis is better when the paralysis affects the anterior distribution of the lower extremity than when it affects the posterior; and more return of function may be expected. The electric examination gives the best method of determining what muscles will regain function.

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A CHANGE IN MEDICAL PRACTICE.

INAUGURAL addresses by eminent practitioners recently opened the winter session of the medical schools connected with the London hospitals. The changes the practice of medicine is undergoing were dwelt upon, and the sentiments expressed were rather pessimistic in tone—that is, from the general practitioner's point of view. It was almost as if his death-knell were sounded.

Dr. Allchin, addressing the King's College students, contended that the unique situation is developing of a profession by its own training and application destroying the very source upon which it depends for a living; as the work of health officers extends and develops and the people become more careful in their modes of living there would be "such a vast diminution of disease that the need for physicians would decrease proportionally." We venture the opinion, however, that there will still be careless living enough and disease enough to occupy a moderate number of physicians for several generations to come, at least. Thereafter let the deluge spread itself as it will. Besides the investigations of health officers (as in their work in the public schools) reveal lesions for which the parents are advised to engage the physician. This should benefit the private practitioner—if only those who are able to pay him can be kept out of dispensaries.

Dr. Ewart told the St. George's Hospital students that "doctors are too many and patients too few; we have seen our busiest days." In this respect doctors suffer no more than any other kind of workers. When there are many doctors only the best succeed. This is a brutal outlook for the individual physician. But it is an inexorable law of nature, which obtains throughout all her realm. And it is on the whole a salutary law. For with regard, for example, to medicine, those who need the physician, being able from among many prac-

tioners to choose only the best, get the best treatment. The remedy, on the other hand, is not at all a brutal one. Let the physician whose practice does meet his expectations leave congested districts and take up his work in regions where men of his calling are fewer in proportion to the general population. It has amazed us to observe how young men who, coming from comfortable practices in most congenial communities, such as everywhere dot this broad land, conclude after a few months' residence in this cosmopolis, where in many a street nearly every house exhibits one or more doctors' signs, that they will become established here. Thus they doom themselves for years, or a decade or a score of years to poverty, to dreadful hardship and finally to bitter disappointment. There is plenty for all good physicians to do; if only we were all of us judiciously and sensibly distributed.

Dr. Ewart goes on to attribute much of the private practitioner's distress to the growth of specialism. Well, that is coming to be an old song. We have never much believed in it. There is something about the private practitioner, on account of which he will never become extinct—that is, the personal element. The man well grounded in the fundamental principles of practice, who has served his patient and his patient's family faithfully through many years and through many grievous experiences, the man of skill, adequate to meet all ordinary conditions and who knows in what emergency to call in the specialist, the man of character, of conscience and of heart, comfortable to go to in sickness—here is a type not at all in danger of extinction. Besides, are all specialists devoted exclusively to their own branches; are not some of them engaged in a little general practice "to fill in the time"; haven't they occasionally some of their old patients whom they do not like to forsake? Unless our memory fails us, we seem to have come upon such instances.

DR. OSLER'S BRILLIANT MAXIMS.

HERE is oftentimes nothing quite so mischievous as the *mot*, the essence of which lies in its containing some but not the whole of the truth and which is effective, especially with shallow minds, by reason of its cleverness. Dr. Osler is a brilliant thinker, an incisive writer and a scientific man. We consider it unfortunate that his evident pleasure in epigrammatic expression has from time to time—quite too frequently—been satisfied at the expense of the scientific aspect of his psychism. We have in mind his recent address before an audience of London medical students. Can a body of men be imagined before whom one should be more careful to avoid misleading statements; when an address should be as devoid of the epigram, a form of rhetoric having really

no place whatever in scientific expression, in which it is above all else essential that nothing but what is precisely and exactly the truth shall be stated? These medical students were invited to adopt the following aphorisms by which they were to be guided in their professional futures: "Be skeptical of the pharmacopœia." "He is the best doctor who knows the worthlessness of most medicines." "Study your fellow-man and fellow-woman and learn to manage them." Here, as a lay exchange has most aptly put it, are "three trump cards placed squarely in the hands of the Barefoot, Sunshine, Barley Water and other curists, the New Thought health-givers, and the sufferers from various forms of religious manias." Who shall not now be entitled to say: "The pharmacopœia is a fake;" "medicine is worthless?" Shall not every pseudo-scientific bunco-steerer interpret Dr. Osler's clever expressions to his own nefarious ends? We know that the pharmacopœia must be revised, precisely as every other human institution; but we know, too, that the larger part of it is made up by the labors of scientific men who are not fools. Many medicines are certainly worthless; but most of them are not. And those which are worthless are quickly enough dropped immediately they are found inefficient. Certainly we must be tactful in the management of our patients; but who among us is ready to practise deception in the way Dr. Osler's brilliant *not* would imply?

A CONTENTION OVER DOCTORS' FEES.

IT is reported in the lay press that there has been no little agitation in Charenton and the neighboring French communes over what is considered an attempt on the part of the doctors to make the citizens victims of unjust measures. An association of practitioners has devised and issued a new schedule of fees for all patients except workmen, the tariff being based upon the worldly condition of the patients and also the bodily comfort of the physicians; the principle seems to have been followed that an amputation upon a Kaiser or a Rockefeller "should be better paid for than a similar operation on a poor workman."

According to this schedule workmen are to be charged three francs (60 cents, as before); tradespeople, well-to-do employers and small landholders, four francs; great merchants, five francs, during the day. Between seven and ten in the evening and on Sundays and holiday afternoons the price is to be doubled. From ten in the evening until seven in the morning the price would be ten francs, or two dollars flat. We learn that "all classes are protesting" against these extortionate fees, and against the "pretensions of these physicians,

which are against good sense and contrary to the laws of humanity." Meetings have been organized to devise measures to safeguard the community against the "scandalous demands of the doctors, who are too often ignorant of their patients' maladies to pretend to judge their social station. We should, for our part, infer from the tariff just noted, that the difficulty must have begun when the physicians permitted themselves to be paid fees which must have been even smaller than those they have thus fixed. They have replied that the patients cry as though they were being skinned alive. "It is necessary for us to live. We are not apostles. We are just people who live by our calling. The cost of living increases and we must meet it." They might have added that the apostles themselves were instructed by their Master to demand meat and drink for their ministrations, on the just principle that "the laborer is worthy of his hire."

He is, by the way, a sensible colleague who declares, when his charge is questioned, that it does not, whether adjusted to the circumstances either of rich or poor, quite come up to the value of his services, which are, as a rule, beyond the ability of most people to remunerate adequately. Anyway, those people in France are very fortunate, if they could only know it. Here in the United States our surgeons will, if the Reverend Dr. Seligman is rightly informed, go into a household and demand fees of \$500 or \$1,000 before they "will apply the knife to the cancer or the anæsthetic to the wound."

PHYSIOGNOMY.

SOME knowledge of physiognomy tends to success in any business or calling; it is really essential for the physician to be able to read faces and to discover the meaning of shifting expressions. Some such knowledge must certainly be had by the medical examiner for life insurance companies, who seeks the lesion which the applicant may be anxious to conceal.

In a general way we accredit the man with the high forehead with genius; we judge the mystic and the spiritual nature by the large and luminous eyes; the paranoic by the shifting glances, which are cast anywhere but straight at one; the sensualist by the thick lips; the weakling by the receding jaws (though it were not always best to act upon this realization); the degenerate by dental, palatal or aural stigmata; the opium victim by the dry pallid skin and the pin-point pupils. And experience has taught us to discern in the face evidences of distinct pathological processes—of nephritis, cancer, tuberculosis, epilepsy and the like.

A scientific treatise concerning physiognomy is really as necessary as one upon any of the recognized branches of practice. We are fairly inundated with excellent

works upon pediatrics, the eye and ear, pathology and the like; but there have been very few works indeed of an authoritative sort relating to facial expression. Books there are on this subject; but most of them are the products of wildcat science, produced by men who are ready to read one's bumps at fifty cents the head. Of course all books on physiognomy are not of that sort. There is, for instance, Darwin's work on the "Expression of the Emotions," which at the time of its appearance and for many years after, was a very adequate exposition of the subject.

It is thus very gratifying indeed to come upon Dr. Waynbaum's monograph on Human Physiognomy, in which we find a treatise equal in scientific merit to that of Darwin; it is based upon the physiological fact that an equilibrium is normally maintained between the encephalic circulation on the one hand, and the extracranial blood currents on the other. Dr. Waynbaum holds that the physical counterpart of an emotion lies in a proportionate disturbance of the circulation of blood in the brain; and that such motor changes in the facial muscles as grimaces or smiles or like manifestations of emotion tend to dissipate this disturbance. Another important conclusion reached by this author is deduced from the role which laughter plays; here is effected a union of the blood globule with the nerve cell and the agreeable feelings which humor inspires are enhanced. "Physiognomy, then, is not only the organ where the emotion is depicted, but the active organ which modifies this and furthers it."

CONJUNCTIVITIS.

THIS affection is not a simple entity; it has varieties, from the hyperaemia due to irritation, to tobacco or to atmospheric conditions, to the virulent gonorrhoeal infection which may, and too often does, lead to panophthalmitis and total blindness. Between these extremes we have a folliculitis due generally to eye strain, and which is not contagious; a trachoma, which is, and which is met oftentimes in school children; a muco-purulent type, which, if not well treated, presently becomes purulent; a pronounced purulent type; a diphtheria of the conjunctiva, upon which is developed the characteristic patch; and the dreadful ophthalmia neonatorum which is generally a leucorrhoeal infection gonorrhoeal in origin.

The gonorrhoeal type, which is the most important, by reason of its possible sequelae, is well considered by Ettles in the *Lancet*, and his observations should particularly interest the general practitioner, who must in rural practice oftentimes take the whole responsibility of treating these cases. On the third day of life an infant may exhibit the upper lid red, glossy, edematous and overhanging the lower; the lids are gummed to-

gether by dry matter; the villous palpebral conjunctiva is scarlet; the discharge is ropy. The neonatal cornea is very vulnerable; there are no tears to wash away the discharge from it; such infants are oftentimes syphilitic. Nevertheless if such a cornea is clear a favorable issue may be predicted. But if we would avoid necrosis we must prevent stasis in the circumcorneal vessels. In his own practice Ettles prefers the nitrate; and here we are disposed to agree with him. None of the newer silver salts have quite taken its place. Three applications daily of the nitrate generally suffice; the others have to be introduced oftentimes every half hour, day and night, so that both patient and nurses are quite broken down for want of sleep. Darier and Abadie always resort to the nitrate in any event, whenever the cornea shows signs of necrosis.

Ettles always begins with irrigation of the sound eye in adults. He then thrice daily irrigates the affected eye with half a pint of a 1-300 solution in warm distilled water of nitrate of silver. (An application thrice a day of a 20 grain to the ounce solution of silver nitrate by means of a cotton-tipped probe immediately upon the everted lid will be found effective.) In all cases he divides the outer canthus; this he recognizes as an extreme measure, but essential in view of the equally extreme danger. We do not, however, for our part, consider it essential in the beginning of the attack in all cases; though it must oftentimes be done. The resulting scar is of course a minor consideration; it is nevertheless tell-tale to the initiated. It must invariably be done when the cornea is pressed upon by the edematous lids. Ettles prefers warm applications which he declares maintain an impaired nutrition and are much more grateful to the patient than the ice cold ones which have been customary. In the stage of ocular gleet he prefers simple astringents, preferably the "lapis divinis," to the antiseptics.

AN OLD-FASHIONED DOCTOR.

A GRAND old man of medicine, Dr. Eliphalet Wright, of Berkshire County, Mass., died the other day at the ripe age of ninety. He was to the very last a practitioner of old-time methods—and a very successful one, indeed; he is said to have known little of, and to have cared less for the theories and discoveries of modern medical science. He remained to the end contemptuous of the laboratory, of germs and serums. He was a "practical bedside physician of the ripest experience, mixing his medicines with brains and administering them with judgment," he demonstrated that the means are not so important as the man who knows how to apply them.

Dr. Wright venesected in congestions and fevers; and we have in these columns given editorial expression of

our belief that there are very decidedly cases in which this practice would be appropriate to-day, making only the reservation that the blood-letting should be in suitable cases and not haphazard. Many to-day look askance upon this practice as being "too heroic;" but is it much more so than our excellent (because successful) plan of sponging with cold water and of cold baths. We are now in addition turning upon our patients, wrapped as they are in ice packs, the full currents of powerful electric fans. On the coldest days we put our pneumonia cases on hospital roofs; and upon this therapeutics they thrive and generally recover. Our consumptives must live outdoors, though their noses and toes be frost-bitten; and thus do the majority of incipients get well. All this treatment is effective, but is it much less heroic than the venesection and the other methods which Dr. Wright employed in those good old days of vigorous therapeutics?

This superb Aesculapian, for nearly the psalmist's span of a man's life, kept his pneumonia patients out of the open air, in heated rooms, wrapped in heavy blankets; and it is said that "not one ever died." To accomplish such results this wonderful physician must have had as very powerful allies the famous Berkshire climate and the unusual recuperative powers of the inhabitants of those glorious hills. In his prime "inflammation of the bowels" was generally fatal; that was because they did not know how to remove appendices. Yet Dr. Wright is declared to have pulled most of such patients through, without recourse to surgery.

Nevertheless we are not likely to go back to the old methods. Ours are better; and the proof of this is that we have very decidedly prolonged human existence. All men concede this. Yet they were giants, many of those old practitioners. Without our present day instruments and means of precision in diagnosis, they had to, and did extremely well, depend on inherent acumen, powers of observation and capacity for sound judgment.

We recall here one among the delicious stories in Conan Doyle's book, *Around the Red Lamp*. Two fledgling doctors—Smith and Jones, let us say—just graduated, and consequently chock full of up-to-date methods, had hung out their shingles near one another. Not far away lived and practiced "old Robinson," whose ignorance of these methods and paraphernalia caused them to despise him; and much of their intimate conversation, between cigarette whiffs, was made up of amiable scoffing at his expense. Presently there came an epidemic of gripe in that neighborhood. Smith was taken down with it, and very grievously, too. One would naturally suppose that he sent for his colleague Jones to attend him. Not so; he sent instead, in his great need, for "old Robinson." But that senile (and then very busy) practitioner returned word that he was sorry he could not come, for the reason that he was then visiting Jones,

who having in like manner come down with the gripe, had also sent for him.

Insanity is not increasing, is the opinion given by Dr. Carlos F. MacDonald with regard to statistics of the insane which were issued by the lunacy commissioners of England and Wales. There is, indeed, a numerical increase both in the United Kingdom and in the United States; but this should not necessarily mean a material increase. Among a number of factors generally overlooked which would account in great part for such apparent increase in mental disease, is the conception of insanity which is steadily widening so that many more cases than formerly are now recognized and appear in the statistics. Again, increased confidence in institutions for the insane has led to increased seeking for treatment, whereas formerly relatives and friends endeavored to conceal the condition of their insane; the result has been the commitment to institutions in recent years of a large number of dotards and feeble-minded persons, who were in the past either kept at home, or sent to poor houses. Besides there has been a pronounced longevity of the insane under modern methods of treatment. Statistics are also somewhat inflated by the fact that readmissions appear as new cases. Again there is to-day much more accurate registry of the insane than there was fifty years ago. Dr. MacDonald now attaches less importance to so-called exciting causes and more to predisposing causes. Pretty much every individual during the most active stage of his life—when insanity is most frequent—is exposed almost daily to so-called exciting causes, such as "wine, women, worry and work." Yet we know that sanity is the rule and insanity the exception in life. Only those who are endowed with unstable mental and nervous organizations, whether inherited or acquired, succumb to mental disease under the influence of these exciting causes. Hence MacDonald believes in heredity as the great underlying cause of all forms of insanity. There may be something in the popular idea that the stress and strain of modern life materially increase the tendency to mental and nervous diseases; but such a tendency is neutralized by improved methods of living, better hygiene and sanitary conditions, the popular habit of outdoor exercise and general diffusion of a better knowledge of healthful living.

The Navy Department, states the *Tribune*, has established some rules covering the employment by naval officers of specialists in the treatment of given disabilities when the regular naval medical officer is not sufficiently skilled to take full care of the case. Such authority to put the Government to extra expense in consulting specialists will not be permitted upon the mere volition of the officer seeking the treatment. Special treatment where naval medical officers are actually available must be by authority of the surgeon-general of the navy, and under the direction and control of the medical establishment of the Navy Department. In carrying out the treatment the naval medical officer in charge of the case will be registered as professionally capable. This regulation is established in order that there may be some control of the desire to put the Government to extra expense in seeking special advice beyond that which is furnished, also gratuitously, by the employment of the naval surgeons.

BIBLIOGRAPHICAL

The Development of the Human Body. A manual of Human Embryology. By J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy in the University of Toronto, formerly Professor of Anatomy in the University of Michigan. Third edition, revised and enlarged, with two hundred and seventy-seven illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Octavo, pp. 528. Price, \$3.

In the present edition of this work the author has attempted to incorporate the results of all important recent contributions upon the topics of which it treats, and at the same time to avoid much increase in the bulk of the volume. The book forms an accurate statement of the present knowledge of the development of the human body, and forms a foundation for a proper understanding of the facts of anatomy. Proper attention is also paid to comparative study.

The text is well illustrated with a large number of cuts, and the student of anatomy will find the work of practical service.

A Text-Book of the Practice of Medicine, for Students and Practitioners, by James Magoffin French, A.M., M.D. Third Revised Edition. Octavo, 1,276 pages, illustrated by one hundred and ten engravings in the text, and twenty-five full-page plates by chromo-lithography, photogravure, chromotype, etc. Muslin, \$5.50, net; leather, \$6.50, net. New York: Wm. Wood & Co.

The rapid exhaustion of the previous editions of this work shows that it has met a real want, and a large part of the text has been rewritten and other parts revised, amplified and brought to date, very much increasing the bulk. It certainly stands in the front rank of its class. The text is concise, clear and practical, but not too brief, as is sometimes the case.

The author's exceptionally lucid style in presenting his subjects has been retained, and his work may be denominated classical.

A large number of new illustrations have been added, many of them in the form of full-page plates in tints and colors.

The book will bear the most careful examination, and both the student and the practitioner will find it of great usefulness.

The publisher has done his part in the highest style of his art.

Text-Book of Diseases of the Skin. By Arthur Van Harlingen, Ph.B. (Yale), M.D., Emeritus Professor of Dermatology in the Philadelphia Polyclinic, Dermatologist to the Children's Hospital, Fellow of the College of Physicians, Philadelphia, Member of the American Dermatological Association. Fourth edition, thoroughly revised and rearranged, with one hundred and two illustrations. Philadelphia: P. Blakiston's Son & Co., 1907; octavo pp. 482; \$3.

The present edition of this excellent text-book is made more useful to students by a change in the arrangement of the description of the various diseases, the rewriting of the text and the addition of illustrations.

This is a well-known standard popular work, a favorite with students, and it is only necessary to announce the new edition with its changes.

International Clinics. This quarterly of illustrated clinical lectures and especially prepared original articles on a great variety of medical and surgical subjects, edited by Dr. W. T. Longcope, and published by J. B. Lippincott Company, Philadelphia, has been received.

The present issue, Volume III., Seventeenth Series, is overflowing with interesting and useful papers on diabetes, pneumonia, mechanotherapy, tuberculosis, blood pressure, carcinoma, gastritis, renal disease, hepatic cirrhosis, cancer, surgery of the blood vessels, inflammation of the gall bladder and gall ducts, and a host of other subjects.

Our readers cannot fail to be satisfied with this publication should they add it regularly to their subscription list.

Manual of Physiological and Clinical Chemistry. By Elias H. Bartley, B.S., M.D., Ph.G., Professor of Chemistry, Toxicology, and Pediatrics in the Long Island College Hospital, etc. Third edition. Revised and enlarged, with fifty-one illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Octavo pp. 202; \$1.

Clinical chemistry is just what the practitioner wants to guide him in the examination of urine, gastric contents, blood feces and milk. Let him get all the general chemistry and toxicology he can but for practical purposes he must have this.

The work is directed to the teaching of fundamental principles and to the application of these principles to the science of medicine, especially to the diagnosis and treatment of disease conditions.

We commend the book to the medical student and to the clinician for ready reference. The text has been brought fully to date.

Business Methods of Specialists; or, How the Advertising Doctor Succeeds. By Jacob Dissenger Albright, M.D., editor of "Albright's Office Practitioner," etc., Philadelphia, Pa. 12 mo., pp. 110; \$1.25.

The aim of the author has been to give publicity to the methods and procedures of the advertising practitioner in the belief that the promulgation of such information will be of interest and benefit to the profession at large.

This is an opportunity for the regular practitioner to obtain accurate information as to advertising methods, and many of our readers will be glad to know what these are.

The subject has been treated from an impersonal standpoint.

Insanity and Allied Neuroses. A practical and clinical manual, by George H. Savage, M.D., F.R.C.P., late Physician and Superintendent of Bethlem Royal Hospital, etc., with the assistance of Edwin Goodall, M.D. (Lond.), B.S., F.R.C.P., late Medical Superintendent of the Cardiff City Hospital for Mental Diseases, etc. With six colored plates and forty-five illustrations in the text. New and enlarged edition. Chicago: W. T. Keener & Co., 1907. 12 mo., pp. 624; \$2.75.

This little book contains the essentials of mental pathology, as required by the student and the general practitioner.

The author gives an excellent description of insanity, traces its life history, explains the legal relation-

ship of the insane, and making plain the duties of the physician who has to be responsible for these unfortunates. The greater part of the work is the record of the author's own experience, well illustrated.

No better book can be found.

The Pancreas; Its Surgery and Pathology. By A. W. Mayo Robson, D.Sc. (Leeds), F.R.C.S. (Eng.), London, and P. J. Cammidge, M.B. (Lond.), D.P.H. (Camb.), London. Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 546, octavo; \$5.

This is a classically written and beautifully illustrated work upon a most important subject, about which we are greatly in need of information.

The subject is fully written up to date, so that when one has read this volume he may consider that he has not only the last word, but all there is to be had of a reliable character.

The chapters on "Diabetes" and on "General Symptomatology and Diagnosis" will be found of great interest to the clinician.

We cannot commend this book too highly to our readers.

Diseases of the Genito-Urinary Organs and the Kidney. By Robert H. Greene, M.D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and Harlow Brooks, M.D., Assistant Professor of Pathology, University and Bellevue Hospital Medical School. Octavo of 536 pages, profusely illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$5 net; half morocco, \$6.50 net.

This volume is the result of the conjoined efforts of a surgeon and a physician, with a view to uniting in one treatise the medical and surgical aspects of these diseases.

The text is devoted primarily to the urinary organs, purely sexual disorders being made secondary.

The work is strictly up to date, is well illustrated, and as a text-book or for ready reference will be found all that is desired.

Progressive Medicine, Vol. III, September, 1907. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 290 pp., with fifteen engravings. Per annum, in four cloth-bound volumes, \$9; in paper binding, \$6; carriage paid to any address. Lea Brothers, & Co., publishers, Philadelphia and New York.

To keep up with the times—to sieze the discoveries of each day and week as they come—to go on the crest of the advancing tide—where others drift—to do all these in the medical world of to-day demands incessant reading and tireless memory, and so vast is the field, so many the workers, so active are they that without the help of such publications as *Progressive Medicine*, it would be well nigh impossible.

This volume is made up of four major articles, each of which aims at condensing in itself all the recent work pertaining to its subject, and gives us in an hour the digested information that it would otherwise take months to acquire. In each the wise selection and arrangement brings out forcibly, to eye and mind, what might actually be obscured by a wider and more diffuse view.

The leading articles are Dr. William Ewart's paper on "Diseases of the Thorax and its Viscera, including the Heart, Lungs and Bloodvessels"; Dermatology and Syphilis, by Dr. William S. Gottheil; Obstetrics, by Dr. Edward P. Davis; and "Diseases of the Nervous System," by Dr. Wm. G. Spiller.

There is also much other interesting and valuable matter which cannot fail to interest the reader.

CORRESPONDENCE

OUR AMSTERDAM LETTER.

(From Our Special Correspondent.)

Wise Men from Afar Meet in Holland—Interesting Incidents—Scientific Study and Relaxing Diversion—Close of the Congress of Psychiatry.

Amsterdam, September 7, 1907.

To the Editor of the MEDICAL TIMES.

To "beat the Dutch" is to accomplish the unusual; to achieve the most difficult; and to provoke astonishment. As hardy navigators, successful colonists, dauntless warriors, philosophers, theologians and scientists, the fame of the Hollanders is established. It is not surprising, then, that their preparation was perfect, and their control and direction were eminently satisfactory in the matter of the *Congrès International de Psychiatrie, de Neurologie, de Psychologie et de l'Assistance des Aliénés*, of which I wrote last month. This is the last day of the convention. The business sessions were closed last night, and all discussion and debate, interchange of view and advancement of theory have come to an end.

American interest in psychiatry has augmented annually, and the disproportionate increase of the insane in New York State has brought a serious problem to our attention. It is not strange, therefore, that of the fifteen attendants on the Congress from America, the following came from New York City: Carlos F. MacDonald, Louise Robinowitch, Minas Gregory, Smith Ely Jelliffe and Albert Warren Ferris. The remaining delegates from America were G. Alder Blumer, of Providence; W. W. Keen, of Philadelphia; Mary A. Wolfe, of Norristown; C. H. Hughes, of St. Louis; Carl D. Camp, of Philadelphia; E. E. Southard, of Cambridge; H. M. Hurd, of Baltimore; E. H. Brush, of Baltimore; Henry G. Beyer, U. S. Navy; and William A. White, of Washington, D. C.

MacDonald, of New York, presided at one of the three general meetings of all the delegates; and also at a session of the Section on Nursing of the Insane, read an admirable paper entitled, "Development of the Modern Care and Treatment of the Insane, as Illustrated by the New York State Hospital System."

Many incidents lent additional interest to the gathering. At the time of the convocation of the congress, there was held a convention of anarchists in Amsterdam, and some uncertainty was felt as to possible disturbance. Her Gracious Majesty the Queen of Holland, with the Prince Consort, was present at the opening of the congress; and it was stated that she was nervous for fear some demonstration might be made in the great Municipal Hall in which the delegates and visitors were assembled on the afternoon of the first day. The hall contained a large number of people, most of whom were in afternoon or full dress. Here and there one noticed men of a different type,

well-dressed except as to their shoes, and carrying derby hats in their hands. The explanation was ready. By the order of the Burgomaster, over a score of detectives were scattered through the audience, beside several plain clothes men who were in full view. Nothing of an unpleasant nature occurred, but the royal party felt a considerable relief when the function was at an end. To some of the delegates, Dr. Van Wijenburg had given the information that while the Queen had not commanded that any one should be presented to her, it was possible that after she withdrew from the hall to a drawing-room in the same building, some of the delegates might be received. Hon. E. E. Van Raalte, Minister of Justice, made the address of welcome, in musical and exquisite French; and the celebrated Professor Jelgersma of Leiden delivered the President's Oration. The Queen then withdrew. Seeing the committee and the secretaries depart, in the wake of the ladies in waiting and the gold laced officers, a few of the initiated delegates hastened through the long line of palms and evergreens into the drawing-room. An army attaché told me that the Queen had requested that none but Americans or English-speaking people be allowed near her. But several of the others were first in the field, notably a most courteous and distinguished Russian delegate. His massive shoulders, long hair, bushy beard and large features suggested the phrase of Kipling's poem, "The Bear who Walks Like a Man." By chance of proximity he was the first to be presented to the Queen. And as he bowed low, with eager satisfaction, she felt a sudden fear, and said to my military informant that she could think of nothing but the assassination of President McKinley. None of the American contingent was fortunate enough to be among the five presented; but as she left the apartment, they stood near enough to touch the hem of her garment.

Another special feature of the afternoon was a visit to "The Old Dutch Lunatic-Room" of the Historico-Medical Museum. Here were exhibited barbarous implements and apparatus formerly used in the control, correction or subduing of the insane, in the benighted time of our immediate ancestry, to the shame of that recent period, be it said.

In the evening the delegates and their ladies were entertained at a reception in the Municipal Mansion on the Keisergracht, by a committee of ladies; and in spacious parlors, ball room, music room and a garden lighted with Chinese lanterns the hours sped joyously. On the following evening strenuous scientific discussions were put aside, a special dinner being followed by a reception at the Students' Club on the Heilegeweg. Here some amusing shadow pictures silhouetted humorously several of the delegates as well as city officials and members of the royal party. Humorous songs and low comedy by professionals prolonged the gathering until after midnight. A delightful excursion by steamer was arranged to visit Zaandam, where quaint old buildings and curious costumes proved attractive, as well as the lowly house in which dwelt Czar Peter the Great, while learning the art of ship-building. At the Municipal Theater in Leidsche Plein an interesting entertainment was provided for one evening. Under the direction of the painters, Brins and Krabbé, several students of the University of Amsterdam presented some *tableaux vivants*, representing

pictures of a medical variety by Jan Steen, Gerard Douw, Troost and Rembrandt. The most popular was the well known "Lesson in Anatomy," by Prof. Tulp, which is in the Mauritshuis at The Hague. While each tableau was being prepared, a large choir of North Holland peasant girls in native white costume, sang ancient Holland songs, with most pleasing effect. The entertainment closed with a musical *comédie champêtre*, by professionals. The courtly, polished and distinguished Burgomeester van Amsterdam and his charming wife, Mevrouw Van Leeuwen, gave a delightful evening reception in their sumptuous home, and Dr. and Mrs. Tilanus opened their fascinating domicile one afternoon. Several dinners were spread by our gracious hosts, and no opportunity to show hospitality was unembraced.

The termination of our entertainment was reached today by a visit to the asylums Endegeest and Rhijsgeest, an excursion to Leiden and The Hague, and the farewell dinner at Scheveningen, where the ocean zephyrs smoothed the brows of the *savants* and brought redoubled smiles to the cheeks of the fair *congressistes*.

Differences in mother tongue caused much merriment and some perplexity from time to time; the most striking instance occurring being in the case of a visiting physician from Lincoln, Nebraska, who was listed as "Miss Dr. Halle Laura Ewing, Lancon, Nebyse, U. S. A."

A very delightful feature of the arrangements consisted in the numbers of young ladies who acted as assistant scribes of the sections, and as aids to the courteous and untiring secretaries, Drs. Van Wijenburg and Van Deventer, and Mevrouw Anna Moll, the *toegevoegde secretaresse* of prodigious memory and unchanging urbanity.

To-morrow the black-coated men will be missing from the old University alleys, and as before, good humor and placidity will be expressed in every face. The cows will Fletcherize meditatively; the dogs and the human draught creatures will pull serenely on their traces; and their carts will move gradually along; the saffron-tinted sails of the sloops will flap slowly; the boatmen will pole their skiffs and punts along the winding canals with dignity. Emerson said to Americans, "Leave hurry to slaves." There are no slaves in Holland.

FERRIS.

MILK SICKNESS.

To the Editor of the MEDICAL TIMES.

In the St. Louis Post-Dispatch, June 21, 1907, I saw, "Uncle Sam seeks milk-sickness cause." As I live in what was formerly a milk-sick district and took great interest in trying to solve the problem as to the cause, a history of the attempt, as well as the effect of the disease in man and beast, may not be uninteresting.

The only medical work* I am acquainted with mentioning the disease is Wood's Practice, 5th edition, page 460. The effects of the disease is very correctly described therein except he omits to say that after the seeming recovery of the patient, whether man or beast, being fat and apparently as well as ever, if from exertion he becomes overheated, he will suddenly stop and begin to tremble ("trembles" was another name the disease was known by) and fall,

and if he did not die, would be for several days too stiff to regain his feet. Cattle usually recovered if given green corn.

In former years, before the advent of railroads, large droves of cattle were driven north from the milk-sick districts in the south part of the State to be corn fatted for market, and it was no unusual thing, from overheating, for many of them to fall on the roadside, milk sick, and left in a farmer's care to be sent for when they recovered.

Another thing not mentioned by Wood is the peculiar odor emanating from the patient, which, like measles, you can unerringly diagnose the disease by the olfactory organ, upon entering the room.

In 1860 I was informed that a man living at Nokomis, a town sixteen miles east of this place, claimed that he knew the weed that produced the disease and at my request sent me some of it, which I found to be *Eupatorium ageratoides*, or white snake root. However, to make assurance doubly sure, I sent a sample to that renowned botanist, the late Dr. Wm. M. McTheeters of St. Louis, Mo., and he pronounced it the same. I fed some of it to a calf and found that it produced the disease and no mistake.

A number of years after this, a man by the name of Jolly, living in Edwardsville, Ill., early in the spring went out in the woods to cut a mess of greens; he was familiar with everything he cut but one thing, and owing to this fact his wife declined to eat any of them. Jolly was taken sick and almost lost his life from a genuine case of milk sickness.

As the disease was very prevalent in that locality and some people as well as large numbers of cattle had died with the disease, when Jolly recovered, the late Judge Joseph Gillespie asked him to bring him some of the plant, which the Judge sent to a botanist, who pronounced it the white snake root. The discovery was published in the *St. Louis Republican* (now *Republic*). I then gave them the result of my investigation with the plant. Col. Coleman, of *Coleman's Rural World*, and some others expressed their doubt that this was the cause and gave as the reason that the plant grew in the Eastern States, where the disease was unknown, etc. My reply to this was, feed some of the plant to a cow or calf and note the result. If I remember rightly, this they did and were convinced.

A man moved here from northern New York and purchased a farm in the milk sick part of the county. In the fall, he was cautioned either to keep his cows up or not to use the milk, as it was poisoned before the cows show any symptoms of the disease; to all the kind warning he turned a deaf ear, and laughed at the idea of there being any such disease, except in the minds of the natives. In course of time, his cows became infected, and his whole family fell victims to the disease; all died except one daughter.

The first case I saw in man was in my first year's practice in 1850, at the Murlamphy Hospital, at St. Louis, Mo. The patient, a man, had been brought over from Sandoval, Ill., and said that all his family, consisting of a wife and several children, had died with the disease, and that he came in hopes that the St. Louis doctors could save his life. He recovered, though his was the first case treated there.

The fact that the white snake root grows in the

East in low wet places, in the woods, where they do not have the disease, adds nothing to the contrary that it causes milk sickness, as the eastern cattle are well fed and do not run at large on the range and are not forced by hunger as they then were here to eat anything green to satisfy it. The disease only made its appearance in the autumn when the cattle left the prairie range for the more palatable unfrosted food in the timber.

One exceptionally peculiar feature of this disease, is that after recovery from the acute stage, the germs remain dormant, until from excessive exertion and heat, they again become active, producing the disease in a mild form, and this peculiar condition remains while they live.

The fact that after the ground has been cultivated where the poison exists, it disappears, is evidence that it owes its origin to some form of plant life, and if in such places the white snake root can be found, it would be proof positive that it was the cause. Whatever it is that is eaten by cattle it must possess the property of causing an atomic disintegration and generation of a peculiar poison like that formed at times in fish flesh and various articles of food (ptomain), though when the patient recovers in such cases the poison is eliminated, whereas in milk sickness, unlike anything else we are acquainted with, it merely remains latent or dormant, ready to act when occasion offers.

In this locality the disease has disappeared and the young doctors do not know anything about it.

AMOS SAWYER,

Hillsboro, Ill., July 14, 1907.

*Note.—French's Practice of Medicine, third edition, just out, published by Wm. Wood & Co., New York, 1907, page 461 contains a concise account of this disease. It says "the specific infective agent is unknown."—Ed.

MEDICAL PORTRAYAL BY RUDYARD KIPLING.

To the Editor of the MEDICAL TIMES:

Since disease plays a large part in determining the course of human life, it is inevitable that any writer of fiction, especially of fiction that passes beyond the short story, dealing with some brief episode, must allude more or less frequently and minutely, to matters especially interesting to medical men. Certain writers have been criticized somewhat unjustly, for the low birth rate and excessive mortality of their fictitious population—unjustly, because it is only occasionally that the birth of a child has any immediate influence upon the current of events, whereas the death of any character who has figured at all prominently in a story, necessarily reacts very directly and dramatically upon the remaining characters. Then, too, it is obviously impossible outside of the most technical writings, to do more than record a birth, while death, either by violence or on account of the gradual decadence or disturbance by disease, of the bodily functions, readily lends itself to description and suggests sentimental reflections in which many writers and readers delight.

The keen insight into human nature, the graphic descriptive powers, the intense verisimilitude, the literary daring of Kipling, have removed his medical descriptions far from the trite characterization of the physician and nurse and the vague use of a few disease terms of

the average writer. Because of his general tendency to the objective, his mention of disease and death are almost invariably centered in the patient, rather than in the physician, nurse or surrounding relatives and friends. This statement by no means implies that his descriptions are purely technical or lacking in spirit and sympathy. On the contrary, he puts the reader in the position of an eye-witness and makes him feel the emotions which the ordinary writer puts into words that are often mawkish and inefficient. If the reader happens to be a physician, he has the feeling that he is in the presence of an actual case, so that, even when, as is not infrequently true, Kipling's descriptions are very far from accurate, it requires both time and reflection to dispel the illusion and to realize that an error has been perpetrated. Even with such realization, there persists a belief in Kipling's description very closely analogous to an experience with a bizarre and atypical case of disease which violates all text-book rules, but which must be accepted as an illustration of what may happen.

"At the End of the Passage" consists in a description of a rather unusual form of delirium tremens, with entire absence of most of the characteristic symptoms. It is only after reading it several times that the physician realizes that this diagnosis, which the author carefully omits having his own physician mention, is the correct one. On the contrary, there persists the delusion that poor Hummil (even Kipling's proper names, unusual as they are, impress us as being real) died of some supernatural fright and that Dr. Spurstow actually photographed the visual impression of this supernatural horror, whatever it was, from the dead man's eyes, and we are all the more convinced of this explanation by the perfectly accurate statement which Kipling puts into the doctor's mouth: "Nothing there. It was impossible, of course. You needn't look, Mottram. I've torn up the films. There was nothing there. It was impossible." And, knowing on the best scientific authority, that any such reproduction would be impossible, we nevertheless echo the reply to the doctor's statement: "That is a damned lie."

"On Greenhow Hill" contains the nearest approach to the stock description of consumption of the average novelist and yet, on consideration, we see that there is really no description at all. Characteristically, Kipling has drawn the picture with a few bold, meagre strokes, leaving the reader to fill in the details which he does so fully that he scarcely realizes that it is his own mental picture and not Kipling's. Similarly, "Without Benefit of Clergy" gives us an impression of the terrible swiftness and fatality of cholera and a hint of the predisposing climatic causes and vagaries of epidemics which is accurate and yet which lacks entirely anything of the nature of symptomatic word painting.

Perhaps the two stories of Kipling's that describe symptoms most definitely are "The Gadsbys," and "Love o' Women." The former deals with a form of septicaemia (blood poisoning from bacteria), and the keenness of Kipling's insight is well shown by two little details, rarely mentioned and often overlooked by medical writers themselves: the temporary aversion shown by the patient toward the husband whom she loves and her disgust at her frustrated motherhood. The latter is a description of locomotor ataxia. Kipling has, in a sense, perpetuated an old medical error in the name of the story and in the doctor's words, quoted by private Mul-

vane: "An' ut comes from bein' called 'Love o' Women,'" for the excesses implied do not constitute the ordinary cause of the disease. Still, in justice to the author, we may plead much excellent though now somewhat antiquated medical literature and, in justice to the latter, it must be admitted that the suggested cause is occasionally directly operative and frequently in an indirect way through intermediate disease. But his description of the symptoms, put into Mulvaney's brogue, is wonderfully graphic. "I noticed that this man set off from the halt wid a shunt as tho' he was bein' kicked behind." . . . "Wan day I was walkin' round camp wid him an' he stopped and struck ground wid his right fut three or four times doubtful. 'Fwhat is ut?' I sez. 'Is that ground?' sez he, an' while I was thinkin' his mind was goin', up comes the docthor. . . . Love o' Women starts to go on quick an' lands me a kick on the knee while his legs was gettin' into marchin' order. . . . 'Tention,' says the docthor; an' Love-o'-Women stud so. 'Now shut your eyes,' sez the docthor. 'No, ye must not hold by your comrade.'"

The peculiar gait, the lack of sensibility in the muscles so that the patient can neither feel that he is on a hard surface nor direct his legs properly, the inability to stand with the eyes shut because the only dependence is upon the vision and not upon the muscular sense, as with a normal individual, could not be better portrayed.

Insanity, alcoholism, especially the mental anguish and hallucinations of delirium tremens are frequently alluded to by Kipling. In these cases, it is difficult to criticize the author technically. For dramatic effect, the delusions and hallucinations are usually treated as real, even when so doing assumes the supernatural as a fact. On the one hand, it would be erroneous to accept Kipling's descriptions as typical of mental disturbance in general; on the other, it would be dangerous to assert that the bizarre conceptions of the patients might not be reproduced in actual experience.

Throughout his tales and poems dealing with India, we find frequent allusions to sanitary matters and hygiene of the tropics. Hysterical demoralization is well depicted in "That Day" and "In the Matter of a Private." In the latter, indeed, the evolution of hysteria from the phase seen in a group of giggling girls to that in which a soldier runs amuck, is traced in a manner so logical and accurate as to rival the best efforts of a clinical lecturer.

In "The Children of the Zodiac" we have a beautiful allegory containing several allusions to astrologic medicine, that to cancer of the breast being particularly delicate and touching and not lacking in its suggestion of definite knowledge of fact.

While many of Kipling's characters are physicians, he rarely touches upon them in the attempt either to glorify or caricature their professional worth. Indeed, the same might be said of almost all of his characters. Whatever foibles his men and women possess personally or socially, he rarely fails to teach, unobtrusively but consistently, the dignity of conscientious, regular attention to duty. Very few of his characters are idlers or shirks but, whether heroes or villains, English or natives, strong or weak, great or small, almost every one has a background of industry. The exceptions emphasize the rule not only in contrast with other characters, but by the thoroughness with which they devote themselves to their own life, however useless and culpable.

Almost the only instance in which Kipling follows the literary precedent of depicting the peculiarities of the physician, is in "My Sunday at Home." Here, an American physician, visiting England, is a trifle too officious in rendering assistance to a supposed patient and literally falls into the clutches of a drunken man from which he escapes, after several hours, during which he has missed his train connection, only by sacrificing his coat-collar which he leaves in the grasp of the sleeping toper. In a sense the picture is a caricature, but it is drawn in so kindly a spirit and the doctor is so plainly a victim to his good nature and professional enthusiasm that it fails to give offense. Nowhere do we find the melodramatic, impracticable, poverty-stricken physician which so many authors—most notably Ian MacLaren—have intended as a compliment to the medical profession and which most physicians find more insulting than the out-and-out villain like Dr. Jekyll.

RETROSPECTIVE

RECENT EXPERIMENTS IN THE REGENERATION OF BONE.

The regeneration of bone has long been a subject for scientific writers, and research has been active for a hundred years. It was Dupuytren, the French surgeon, who placed the subject on a proper scientific basis, yet authors have never fully agreed; for this reason, Wieder, in a series of articles in the University of Pennsylvania Medical Bulletin, takes up this subject most exhaustively and most interestingly. He performed one hundred thirty-five experiments on rabbits and dogs. He divided the experiments into fifteen series, as follows:

Series 1.—Upon rabbits, to study complete fractures from the first day until about the thirty-fifth day, to determine the action of all the tissues from the earliest period until the full development of the callus. The technique was carried out in such a manner (see Technique) that none of the soft tissues were removed, but the region of the fracture studied in its entirety.

Series 2.—Upon dogs, to study the later developments in the callus during the process of union. The experiments consisted in making complete fractures of the tibia.

Series 3.—Upon dogs, to study the result of injury to all portions of the bone, independent of intrinsic forces. In this series, an effort was made to cause a complete fracture of one-half of the bone, leaving the other half intact in order to maintain perfect position and prevent any mobility of the ends of the fragments.

Series 4.—Upon dogs, to determine the activity of the medulla and cortex independent of the periosteum. It was a repetition of the last series with the exception that the periosteum was removed in the region of the fracture.

Series 5.—Upon dogs, to determine the activity of the cortex independent of the periosteum and the medulla. The experiments consisted in removing the periosteum and making superficial injuries to the bone without entering the medullary cavity.

Series 6.—Upon dogs, to study the activity of the periosteum raised from the bone, when accompanied by injury to the bone not sufficiently deep to enter the medullary cavity.

Series 7.—Upon dogs, to determine whether an ani-

mal substance placed under the periosteum, when not accompanied by injury to the bone, would cause the formation of osseous tissue. Catgut was the substance used.

Series 8.—Upon dogs, to determine whether an unabsorbable foreign material, placed under the periosteum, without additional injury to the bone, would excite the formation of new osseous tissue. In this instance celloidin hardened in bichloride alcohol was used.

Series 9.—Upon dogs, to determine the influence, upon osteogenesis, of blood clot under the raised periosteum, when not accompanied by injury to the bone.

Series 10.—Upon dogs, to determine the effect of merely raising the periosteum, with as perfect hemostasis as possible and without injury to the bone.

The next four series were performed with the object of determining the possibility of regeneration of the tibia after Nichols' subperiosteal resection, when not in the presence of inflammation. They were as follows:

Series 11.—Upon dogs, to determine the influence upon regeneration exerted by following a small bridge of osseous tissue to remain under the periosteum, instead of removing the entire section of bone.

Series 12.—Upon dogs, to determine the activity of the periosteum alone. These operations consisted in typical subperiosteal resections.

Series 13.—Upon dogs, to determine the influence exerted upon regeneration by the periosteum, when the medulla is replaced between its layers after the removal of the cortex.

Series 14.—Upon dogs, to determine the influence upon the regeneration exerted by bone salts deposited between the layers of the periosteum, after the removal of the cortex.

Series 15.—Upon rabbits, to determine, if possible, what role the fibrin took in the formation of the cartilage. The experiment consisted in making complete fractures and, at very short intervals afterwards exposing the area injured and making smears and sections from the callus. Unfortunately the results of this series are negative, owing to defective technique.

His technique was interesting but those wishing to go into details are referred to the original article. He gives a most exhaustive series of photographs illustrating his results.

Dupuytren classified the process entirely on macroscopic findings as follows: 1. From the first to the tenth day: This is the period immediately following the fracture and is associated with the infiltration and engorgement of the tissues by blood. The resulting coagulum is absorbed between the ends of the fragments and there is a viscid, gelatinous material poured between the ends which (he says) plays an important part in the final repair of the bone. The medulla becomes swollen and hardend and of a reddish, fleshy, or pulpy appearance as a result of a sort of gelatinous infiltration. 2. From the tenth to the twentieth or twenty-fifth day: In this period the callus, which is mostly cartilaginous, takes definite shape, the soft tissues becoming isolated from it. The medullary membrane obliterates the canal and proceeds to cartilage and osseous tissues formation. The whole mass constitutes the provisional callus.

3. From the twentieth to the thirtieth, fortieth, or sixtieth day, according to the rapidity of the work of reproduction, the age, constitution, and health of the patient: In this period the cartilage becomes converted into bone, the entire provisional callus becoming spongy bone. The muscles and tendons become free, but there is absolutely no union between the ends of the fragments. 4. From the fiftieth or sixtieth day to the fifth or sixth month: In this period the provisional callus becomes condensed from spongy to compact bone and the medullary canal is obliterated by osseous matter of greater or less density. The substance between the fragments is reduced to a mere line of a different color from the bone itself; it gradually assumes more consistency, loses its color, and ultimately, toward the end of the period becomes ossified; the definite or permanent callus is then formed. 5. From the fourth or sixth to the eighth or twelfth month: During this final period the temporary callus is absorbed, the medullary cavity becomes re-established, the muscles and tendons perfectly free and the union is complete.

It will be seen from the above that the views expressed by Wieder and those formulated by Dupuytren coincide in many respects. His idea of a provisional and permanent callus is most heartily endorsed. In none of the experiments and in none of the cases that Wieder saw clinically has there been, as claimed by Hamilton, Gaillard, and Paget, what would appear to be direct union between the ends of the fragments without the interposition of callus. The fact that in fractures that had apparently united perfectly there is, up to about three months, nothing but cartilage and connective tissue across the line of fracture, is one that is never considered, although it may be of considerable clinical importance of the fact that the callus was pliable for a considerable length of time, for Wieder succeeded in correcting angular displacement by extension and gentle pressure several months after the apparent union of the fracture. That a condition similar to that found in these experiments occurs also in human beings is beautifully substantiated by a case encountered in one of the dispensaries of Philadelphia. The patient was a young man who had sustained a concussion of the brain and a fracture of the ulna below the olecranon. He recovered from the concussion and the fracture united completely in extension. At the end of six weeks he presented himself for the first time at the dispensary for treatment for ankylosis of the elbow-joint. There was apparently perfect union of the fragments in good position accompanied by ankylosis of the elbow-joint in extension, there being only a very limited range of motion. X-rays show clearly the line of fracture with the fragments in perfect position. Had the bone united by osseous tissue this line would no longer be visible. The man was etherized and the adhesions in the elbow broken up and the arm placed in acute flexion without any injury to the fracture whatever. The proper explanation for the appearance of cartilage in the callus appears to me extremely hard to arrive at, if at all possible. Should we consider it a reversion to the embryonal state we must naturally ask why it occurs only in the region of the fracture and not throughout the periosteal and medullary callus, and why it does not

appear in a single one of the sawcut experiments. If it is due to motion of the fragments alone, how can we explain its presence in the medullary cavity of a greenstick fracture?

Wieder improves on Dupuytren's classification by basing his results both on macroscopic and microscopic examinations, as follows: From the time of fracture until about the fourth day may be considered the period of infiltration. The bone has been fractured, this being associated with free hemorrhage from the bone, medulla and all the injured soft tissues in the neighborhood. (The periosteum may also assist in the effusion of blood, but Wieder never found it to bleed in any operation upon a normal animal where it has been cut with a knife.) The cortex of the bone is usually fragmented, the fragments lying loose across the line of fracture, and some, at times, being driven into the medullary tissue. The blood which infiltrates all the tissues and is found at the site of fracture, loses its corpuscular nature within forty-eight hours, and, in its stead, we find fibrin first as a loose network and then in dense masses. It is probably this which is described by Dupuytren as the gelatinous material appearing early between the ends of the fragments. All the tissues are moderately infiltrated by polymorphonuclear leukocytes. This infiltration disappears by the fourth day. Toward the end of this period the fragments do not appear to be quite as movable as at the time of fracture, this being due either to the edematous and engorged condition of the surrounding tissues or to the masses of fibrin between the ends of the fragments gluing them together. After the second day there is beginning cellular proliferation of the medulla and of the deeper layers of the periosteum. There is connective hyperplasia if the medulla.

2. From the fourth to the ninth or twelfth day may be considered the period of temporary callus formation. During this period we see a gradual absorption of the products of hemorrhage in the soft tissues, which is replaced by a connective-tissue hyperplasia. The periosteum, which was beginning to show proliferation, now becomes very thick. Its deeper portions consist of large polygonal cells which, at some distance from the site of fracture, secrete a homogeneous matrix in lines at right angles to the cortex, which matrix becomes calcified to form osteoid trabeculae. Some of the cells are included in this mass and become bone cells. The remainder arrange themselves as a layer upon the trabeculae as the osteoblasts. The spaces between the trabeculae become vascularized and medullary spaces are formed. Nearer the site of the fracture the cells of the periosteum in many cases appear to be embedded in a homogeneous matrix, which is more hyaline in character and does not appear in streaks, but is diffuse. It shows no tendency to calcification, and is probably the earliest stage of cartilage formation.

In the medullary cavity the endosteum undergoes the same proliferation that the periosteum has displayed, with a similar formation of osteoid trabeculae at some distance from the site of fracture. The medulla becomes hyperplastic, with a decrease of the fat cells and an increase in the connective tissue and medullary cells. Between the ends of the fragments there is usually fibrin with gradually increas-

ing connective tissue and, in some cases cartilage.

All the processes described increase, so that at the end of this period there is a fair amount of callus present, often, when the position is fairly good, forming a complete sheath of the fragments. The callus usually consists of osteoid tissue on both fragments, with cartilage at the line of fracture: osteoid tissue in the medullary canal and connective-tissue or cartilage between the ends of the fragments.

From about the twelfth to the eighty-fifth day may be designated the stage of reorganization. During this period there is augmentation of the callus where most needed and absorption in the places where callus is not required. Osteoclasts are to be found in close proximity to the osteoblasts, the one causing absorption along definite lines, while the other strengthens the weakened points along the new lines. The deeper portions of the periosteal callus become channelled in a direction parallel with the old cortex, while the more superficial portions under the periosteum and along the lines of stress and strain become very dense by the action of the osteoblasts. The cartilage, which has assumed definite shape and size according to the amount of displacement of the fragments (especially angular), becomes gradually converted into osteoid trabeculae. Ossification originally occurred throughout the mass of cartilage, but as the latter becomes more localized the conversion occurs only at the edge of the mass. The trabeculae which are in the medullary cavity also undergo some absorption. Across the line of fracture there is no osteoid tissue, but merely dense connective tissue, or at times, cartilage. During this period the cortex suffers great absorption by osteoclasts, the widened spaces, in many cases, again being lined with osteoblasts. These spaces communicate freely with the spaces between the medullary and periosteal trabeculae.

4. From the eighty-fifth day to the end of the longest period of any of these experiments is the stage of permanent callus formation. During this period there is extensive absorption of all the callus and cortex, with a reapposition of apparently much denser bone in the dilated spaces.

Studying the formation of distinct lamellae in the trabeculae, the most important thing that distinguishes this period is the fact that osteoid tissue appears across the line of fracture. It is at first very porous and its spaces communicate with those of the cortex. This latter becomes denser until it appears even denser than the original bone. The cartilage gradually disappears, the time at which this occurs varying according to the amount present.

5. As far as I am concerned, this is only theoretical, but it seems that there must be a period, as described by Dupuytren, in which in simple fractures there is complete absorption of all the provisional callus and a complete restoration of the medullary canal. The latter of these experiments show that there is a tendency for this to occur. This should be known as the period of absorption.

The summary of Wieders's conclusions are as follows:

1. In regeneration of bone all the various elements, viz., periosteum, cortex, endosteum, and marrow, assist in the process.

2. In their activities they appear to bear more or less reciprocal relations to one another, so that the absence of one can be compensated for by the others.

3. The activities of the endosteum and the medulla can be brought into play by slight stimulus.

4. The periosteum even when proliferated, is incapable of forming osteoid trabeculae unless in close contact and union with previous bone formation or calcareous salts.

5. Periosteal bone formation is usually preceded by superficial absorption of the cortex through the action of osteoclasts. These possibly liberate lime salts in the tissues, for the osteoblasts to again precipitate in the surrounding hyaline matrix.

6. Cortical bone-forming activity does not manifest itself until after considerable absorption of the cortex has occurred, so that it may be due to the liberation of bone cells which take on new activity and again precipitate the liberated calcium salts in new situations; or it may be due to the opportunity for the ingrowth of endosteum into the widened spaces.

7. The unimpaired regeneration of defects of bone the defect is filled with trabeculae and spaces that originally run at right angles to the line of the bone, but rearrangement occurs in the later stages, with a change in the directions of the canals of the new bone. This is the normal function of cortical activity.

8. The medulla assists in the formation of osteoid trabeculae by means of a skeleton framework along which the trabeculae form and also, possibly, by the activities of some of the marrow cells.

9. The deposit of calcium in certain lines to form trabeculae is not due to blood vessels, as the spaces between the trabeculae, until some time after they have been formed, do not contain blood vessels.

10. Cartilage is a pathological but constant feature of the repair of complete fractures. It is not found in normal regeneration free from extrinsic influences.

11. The formation of cartilage may have some direct or indirect relation to the masses of fibrin found in the region of the line of fracture or may represent a retarded development of osteoid tissue due to poor nutrition.

12. In complete fractures the amount of cartilage present depends mostly on the angularity of the fragments, and it is always found in a wedge shape on the internal side of the angle.

13. Complete fractures are very slow in their final union, so that in the case of vicious union they may be safely rebroken up to nine months and even longer with danger of fracturing the bone in another situation. They may even be made to yield to constant traction in the proper direction.

14. There is usually sufficient callus formed to the internal side of an angularly deformed fracture to almost re-establish the original line of the bone from one joint to the other, but with commensurate shortening.

15. In subperiosteal fractures the repair is probably mostly from the endosteum and medulla, because of the extravasation of blood into the medullary canal, injuring the medulla to a greater extent than the periosteum.

16. In repair of green stick fractures the endosteum and medulla are probably the dominant factors.

17. Regeneration of the bone after subperiosteal re-

section is usually cartilaginous in nature when sufficient time has not elapsed before the operation for the formation of periosteal osteoid trabeculae.

18. A strip of healthy bone, when left between the two fragments of the resected bone, hastens osteoid regeneration.

19. Healthy medulla, when sutured between the apposed surfaces of the periosteum, hastens considerably the regeneration of bone.

20. The process of repair of complete fractures may be divided into the following five stages:

1. Infiltration.
2. Temporary callus formation.
3. Reorganization.
4. Permanent callus formation.
5. Absorption.

21. Similar stages are probably found in the human subject also, with slight differences, owing to the size and nature of the species.

22. The deeper layer of the periosteum, the endosteum, the tissues lining the Haversian canals and the bone cells are probably all related or identical tissues, exhibiting different activities because existing under different physical conditions.

23. Cartilage is converted into osteoid tissue in several different ways, depending upon the age of the cartilage and the stage of the fracture.

24. Osteoid tissue, when seen in ground section, is not as dense in structure and has a deeper yellow tinge than normal cortex, probably due to some difference in chemical composition.

25. Specimens of bone, with their soft parts attached can be ground to microscopic thinness, but they possess no advantage over decalcified specimens beyond demonstrating canaliculi.

26. Investigations of regeneration of bone, when not accompanied by microscopic study, are untrustworthy, and often deceptive.

Preiser has also taken up bone formation, studying hip-joint diseases. His skiagraphs show that the trochanter may be forced up by an abnormal position of the acetabulum in a sound joint, and that this should not be regarded as pathognomonic of disease. The neck of the femur may be abnormally short or the acetabulum may be back of or medial to the Roser-Nelaton line. This lack of normal proportions is liable to entail "idiopathic" arthritis deformans of the hip-joint, which he thinks is always a secondary affection, and cannot occur without abnormally high position of the trochanter, appearing as a chronic, constantly recurring sciatica, the joint symptoms are inconspicuous. As the affection involves first the capsule and cartilage, Roentgen diagnosis is impossible in the early stages, but when, besides the sciatica, there are pains in the knee and thigh, a hip-joint affection should be suspected. Arthritis deformans may occur at any age and on one or both sides. Resection of the head of the femur does not give such good results in treatment of arthritis deformans as Lorenz's technic of "inversion for correction of defective hip joints," supplemented by physical measures. In case of high trochanter, the lateral condyle of the tibia generally projects laterally under the condyle of the femur, as much as 1.5 cm. in extreme cases. As this anomaly is encountered regularly also with arthritis deformans, possibly it has some connection.

Marfan in his investigations decides that rickets is

the resultant of the reactions of the defense against infections and chronic intoxications in the bony medulla, very active in the young infant and the foetus. The reactions consist of the vascularization and proliferation of the bony medulla, not only in the long bones, but also of the Haversian canals and the subperiosteal layer of other bones, ascribing to it the growth of adenoids and of enlarged tonsils.

WALTER BERGER, M.D.

ACONITINE IN NONFEBRILE CONDITIONS.

The great value of aconitine and the wide range of its applicability in febrile disease, has thrown somewhat into the shade its uses in other conditions. To some of these it is our purpose to allude in the present article.

In the vomiting of pregnancy aconitine deserves a place. Not only does it act as a local anesthetic to the irritated stomach and dissipate gastric hyperemia, but it relaxes vascular tension, favors elimination, soothes nervous irritation, and in every way tends to quiet the patient. The dose here may be grain 1-134 of amorphous aconitine in watery solution, repeated every ten minutes in acute cases, less frequently in milder form until the irritation has subsided. It is sometimes advisable to administer a dose of one to five granules shortly before each meal, to prevent the irritation of the stomach by food.

Aconitine is also effective in subduing nervous palpitation of the heart or that due to hypertrophy. Here also a granule may be administered every five to sixty minutes, according to the case.

In all headaches attended by a flushed face or throbbing of the arteries or by a tense contracted pulse with pallor, in facial neuralgia, toothache, and in any other form of neuralgia above the clavicle, these small quickly repeated doses of aconitine, are of value. Many patients have testified to the speedy relief from noises in the ear, following the use of enough aconitine to dissipate aural congestion. This remedy is also effective as a means of relieving the neuralgic pain attending herpes zoster, while awaiting its cure by zinc phosphide.

Girls will persist in sitting upon the damp grass while menstruating and the consequence is a sudden stoppage of the flow with cerebral congestion and great distress. Here aconitine is a specific and a granule may be given every five to thirty minutes in solution, until the flow is re-established. On the contrary, when menorrhagia is due to pelvic hyperemia or to high vascular tension, aconitine is a prompt and powerful remedy. We are able therefore by the use of this single remedy to restore the flow in some cases and to restrain it in others. A beautiful example of the application of precise remedies to pathological conditions.

Another afebrile complaint in which aconitine is effective is cholera infantum. Here, and in all cases of excessive intestinal discharges, aconitine by moderating the intestinal hyperemia affords relief. Here, however, its use is overshadowed by that of the sulphocarbolates, which destroy the cause by disinfecting the alimentary canal and atropine which directly antagonizes the principal symptom by controlling the excessive action of the excited pneumogastric nerve. It is evident that aconitine which directly stimulates cardiac inhibition, should only be employed here in small and not very frequent doses, otherwise it would antagonize the atropine.

This stimulation of cardiac inhibition deserves more attention. In asthenic fevers where the pulse is small, feeble and rapid, very small doses of aconitine increase cardiac control and lessen the labor of the heart by relaxing vascular tension. The action is, therefore, therapeutically that of a cardiac tonic, although if the remedy is pushed too far this is quickly lost in cardiac depression. For this reason we may even elevate a subnormal temperature by the use of aconitine. In this case it is synergized by atropine, although this is its most direct antagonist when both are pushed to large dosage. Aconitine is very useful in the early forming stages of diphtheria and croup. While it has probably no influence over the specific microorganisms or over the toxæmia, aconitine undoubtedly lessens the hyperæmia, and in catarrhal forms may abort the attack. The same may be said as to its administrations in rheumatism, where it may advantageously be combined with salicylic acid administered as a gastric antiseptic. This remedy is also of prompt efficacy in subduing spinal irritation as it is frequently presented in young women. In angina pectoris aconitine is often of value in relaxing the spasms, especially when accompanied by glonoin or the nitrites.

In cerebral excitement, while gelseminine is more directly beneficial, aconitine is a good second, and when administered with the former seems materially to enhance and quicken its action.

These are but a few of the uses to which aconitine may be put, other than in the reduction of fever. The physician who learns to use it has a potent remedy at his disposal, and one which will be many times in his hands every day of a busy practice. It is especially effective with children, very frequently, indeed, a few doses of aconitine in the incipency of an attack will dissipate it so quickly as to leave the physician at a loss as to what diagnosis he can assign to the little sufferers malady.

Let it be remembered that the resultant action of aconitine is to reduce congestion in areas, first to equalize circulation and later to render the arterial side proportionately anemic by "bleeding the arteries into the veins." Therefore, when this is accomplished its efficiency, except to sustain effect, is at an end, and if the trouble for which it is given has not subsided we must look farther for contributing exciting cause, etc. (usually found in autotoxæmia), and may have to produce temporarily the shock of an acetanilid blow or a cold wet blanket.

A mistaken idea has long prevailed (now rapidly disappearing) as to the dangers of aconitine. It is absolutely without danger when a right preparation is rightly used. The doctor must know the product he is using (they vary mightily), must know what results to expect and when he has got them, stopping, as a rule, with relief (remedial effect) or when a distinct tingling sensation of the face and hands is experienced denoting that approximately full physiological effect is on.

Aconitine is a great remedy, wondrously efficient in a multitude of affections due to congestion and, in the hands of a man with a lick of sense, absolutely safe.

W. C. ABBOTT, M.D.

Hæmoglobin in the Fæces.—O. Schumm (before Biologic Section of the Medical Union of Hamburg, *Munch. Med. Woch.*, Feb., 13, '06), showed a light greyish yellow stool from a case of cancer of the

stomach that contained about five per cent. of hæmoglobin. Roberts von Clemm's acetone-hæmin test, though responding to clear solutions of blood, often fails when applied to fæces. The statement of Boas, corroborated by von Clemm that alcohol gives a positive guaiac test, was not substantiated. The aloin test is superfluous.

The author, from experiments privately conducted with C. Westphal, considered the Adler Brothers' benzidin test as not adapted to fæces in the original form while, if it is modified in analogy to the weaker test; it is too delicate. The bruizidin test, being eight times as delicate as the guaiac test, is a very delicate test for oxidases. Von Clemm's statement that Schmelinsky's hæmatoporphyrin test is not applicable on account of the vegetable matters in human alimentary contents, is unjustified. The hæmatoporphyrin and chlorophyll spectra can be recognized when both are present. However, when a small amount of blood is present the hæmatoporphyrin test often fails on account of the marked brownish tinge.

Weber's method can be improved by shaking the glacial acetic acid ether extract with one or two parts of water, so as to get a clear and stable color, and to exclude the possibility of errors due to oxidases.

About four grams of fæces are rubbed with 15 c. c. each of ether and alcohol, filtered, the filter being washed once with alcohol-ether and several times with ether. The residue in the filter is extracted twice with four c. c. glacial acetic acid. Half of the filtrate is rendered alkaline with ammonia and a few drops of hydrazine hydrate or sulphid of ammonium are added and the solution is examined spectroscopically. The hæmochromogen spectrum is positive with blood contamination of 48 per cent. The remainder of the filtrate is diluted with ether, cleared by shaking with water, then tested with guaiac-turpentine.

After the ingestion of cooked meat, weakly positive tests for hæmoglobin are often obtained by the Weber method, still plainer by the author's.

Carbolic Acid Gangrene.—D. Wallace (*Brit. Med. Jour.*, May 11, '07) summarizes nine cases, all following common injuries (all of which were originally trivial in degree) with dressings generally of 1-20 strength solution. The appearance of the gangrenous area is typical — the skin at first dry, wrinkled and grayish-white, later becoming dark and more shriveled; there is some hyperæmia at the junction of the living and dead tissue, and eventually a line of demarkation. One should wait for this line before amputating, as one cannot otherwise tell how much tissue is actually destroyed. The condition is characteristic of dry gangrene; it may follow the use of solutions of only one or two per cent. strength. Possibly an idiosyncrasy obtains in some cases; in which stasis followed by thrombosis occurs more readily with gangrene for a sequel. The portion which becomes gangrenous is generally a terminal part of the body—a finger or a toe. Age, sex and physical condition do not appear to influence the production of this condition. Patients should always be warned against carbolic acid as a dangerous substance. Wallace would not under any circumstances apply a carbolic dressing to a finger.

In scarlet fever, Polosker (*Arch. of Pediat.*, Jan. '07) would isolate the patient thoroughly; and for a while he would also isolate other members of the family

(especially children) who have to come in contact with the patient. He urges more care on the part of physicians and other attendants. There should be thorough disinfection at the termination of the illness. The mild cases should be diagnosed as early as possible, and carefully watched. Antistreptococcus serum should be used in cases likely to prove severe, or where there are complications, especially angina. Adenoids, and hypertrophied or diseased tonsils should be removed. The urine should be examined frequently during the disease. The case cannot be considered concluded until desquamation is entirely over, and until complications, especially otitis, are no longer likely. Permission to return to school should be refused for the longest time possible consistent with educational requirements. Physicians attending many cases of exanthemata should refuse surgical and obstetrical cases. The laity should be constantly enlightened concerning this disease and its complications; there should be more rigid health laws. Polosker believes that eventually the exanthemata will be treated only by specialists.

German Army Health Rules.—The new German Field Sanitary Regulations, which have recently been received by our Surgeon-General, and a translation of which is being prepared for distribution in our medical corps, are the result of the trial of the German methods by the Japanese in their war with Russia. The Japanese army was organized and equipped after the German standards; and it has thus been possible for the latter to observe the results and profit by the experiences gained in actual warfare. Among the important changes are: A great increase in the authority of the surgeons, and the placing of the sanitary department personnel upon a military footing, with rank and titles as in the regular force; all non-combatants are made a part of the regular organization and subject to orders; a portable X-ray apparatus and portable bacteriological laboratory are provided for field use; special water wagons, dental outfits (with special equipment for treating fractures of the jaw) are also provided; the supply of cavalry-bags and folding litters, which may be carried on mules, is augmented; a new first aid packet is used, two of which are issued to the German soldier, and which about equal the one in use in our army. The regulations also require the presence of a field sanitary expert with each army corps.

Thoracic Aneurism.—Oliver (*Brit. Med. Jour.*, Mch. 16, '07) insists upon rest in bed, quietude and a restricted diet as essential. Cases unaccompanied by aortic incompetence are more amenable to treatment than those arising just above the aortic orifice and accompanied by regurgitation; in the latter there is lacking the comparative inaction necessary for blood coagulation. Iodide of potash gives on the whole the best results; it often relieves pain and paroxysmal dyspnoea. An ounce may be given in a day; but there is nothing to be gained from such large doses. Sometimes the results are not satisfactory, as when this drug is pushed to the degree that lowered blood pressure with increased heart action results; this prevents a deposition of the clot in the aneurism. Calcium salts, although they are known to favor coagulation of the blood, have not been as satisfactory in Oliver's experience as the potash salts. Even with potassium iodide, however, there are few real cures of aneurism, although much relief is obtained. In distal aneurism spontaneous clotting may take place;

but this occurs very seldom in thoracic varieties. Oliver has had no experience with silver-wiring or needling. Several cases received gelatin subcutaneously, in the tissues circumscribing the sac. Some of these patients complained of great pain in the parts afterwards; in others there was always a slight rise of temperature and discomfort; in a few the aneurismal pulsations became less marked and the tumor became harder and shrunken. Apart from the pain of a gelatin injection, there is the possibility of tetanus; it is very difficult to sterilize this substance. Several patients left the infirmary much better; but the cure was never complete, for in some the sac ruptured weeks or months afterward. A great difficulty which Oliver experienced in treating thoracic aneurisms was in getting patients to remain content under treatment; rest in bed and the restricted diet become in time quite irksome, so that treatment is given up when relief is experienced.

The Chemistry of the Living Cell.—V. C. Vaughan (*Canadian Jour. Med. and Surg.*) declares that a most important group of cellular secretions is made up of the ferments or enzymes. All the ferments are cellular products. A ferment is a substance of definite chemical composition formed by the rearrangement of the atomic groups within the cellular molecules. The action of the ferment, while it is determined by the cell which produces it, is not concerned in the "energy traffic" constantly going on between the molecules of the cell which produced it and other molecules external to this cell. With our present limited knowledge of the chemistry of the cell molecule, it is impossible, at least in many cases, to distinguish between the chemical reactions resulting from cell metabolism, and those due to ferments. The function of a ferment is to hasten chemical reactions, which take place (but far more slowly) without the presence of the ferment.

The Paris morgue, which has so long had a gruesome interest for the tourist and the reader of French fiction is, it seems, now doomed. After some fifty years its notorious existence is to be ended. The very large æsthetic element of the Paris population, states the daily *Times*, exults in its approaching demolition. The doctors of Paris have complained that it is outgrown and that there is needed a more modern repository, and in a different quarter. There is, of course, needed in every great city a place where the unknown victims of unnatural death, of accident or of crime, can be viewed together with their belongings, for possible identification. Considering how large a quota of these victims were contributed by the Seine, the gruesome old place by its bank had the merit of convenience. Those Parisians of æsthetic temperament rejoice that it will now be possible to see the rear of Notre Dame cathedral (perhaps the most picturesque of all its aspects) without any other immediate surroundings than those of foliage. But the artists are admonishing the municipality not to put anything in its place; "to do that, would make us regret the morgue."

Medication of the Eye in Children.—B. F. Rea suggests (*N. Y. Med. Jour.*, Aug. 17, '07) the following method for refractory cases: To pour the fluid to be instilled on the inner canthus of the closed eyelid; on being told to open the eye the fluid will run in. Rea first cocaineized an eye by this method, and was thus easily able to remove a foreign body.

MISCELLANY

Eugenics, recently declared Prof. Karl Pearson at Oxford, is "the study of agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally."

A medical night school has been opened in St. Louis under the title of the Hippocratean College of Medicine. This will undoubtedly prove an excellent institution; but it begins with a handicap of no little size in its name.

Concerning our metropolitan smoke, Mr. David Townsend in *Cassier's Magazine* makes three fundamental propositions: It is a nuisance; it can be modified or entirely eliminated; such elimination is a source of profit to the owner of the plant as well as to the community at large.

Acquired causes of insanity are use and abuse of such agents as alcohol and opium, excesses of all kinds, mental and physical strains, overstudy, excessive grief, domestic infelicity, malformations, disturbances of circulation, acute diseases and injuries of all kinds.—Punton: *The Kansas City Medical Index-Lancet*.

An Effective Counter-Irritant.—A sufferer living near Albany, N. Y., had applied to his arm an old-fashioned poultice, of which one of the ingredients was gunpowder. A stray spark from a match ignited the powder; the poultice exploded, setting fire to the clothing and badly burning the already afflicted member.

A claim of \$100,000 for medical services was allowed by a jury to Dr. Ziegler of Chicago, who produced in court a contract with a patient who had died, to the effect that if he would devote all his time to caring for her he should receive that amount at her death. He acted in this capacity and upon these terms during several years.

As a school of character, it is doubtful, declares the *Lancet*, if any better could be devised than the routine career of a medical student. "It is not claimed that every medical student at the end of his five years' curriculum will be found to have become a saint. But if he has not developed manly qualities of self-restraint, courage, gentleness, and forbearance it is not for want of opportunity of practicing these virtues."

Medical Warnings Against Tobacco.—The *Sun* whimsically observes concerning Osler's advice to medical students against smoking too much: "Smoke is an honored prophylactic of the profession; and of the irritations one has to endure from the sons of Galen, is there one sharper than the solemn authoritative way in which a physician warns you to quit smoking, while cigars bulge insolently from his own pockets?"

By the Nathan Straus Benefaction, pasteurized milk has now for fifteen years been dispensed in New York City. In the season of three months closed in September, seventeen stations were maintained and nearly three million bottles and more than one million glasses of milk were sold or given away. Throughout the year six stations will be continued. Mr. Straus's plan has been copied in nearly 400 cities in all parts of the world.

Dr. Lawrence F. Flick, Director of the Phipps Institute, and Chairman of the Committee on the International Congress of Tuberculosis, which will be held in Washington in the fall of 1908, is raising a fund of

\$100,000 to meet the necessary expenses of the assembly. It is expected that the United States will appropriate \$25,000 to help meet these expenses, and that individual states will contribute liberally to their separate exhibitions.

To fight the plague in San Francisco surgeons of the Marine Hospital service were ordered to the assistance of Dr. E. Blue, who, at the request of the Mayor, had been placed by the Federal authorities in charge of the situation, which certainly called for drastic measures. Twelve district headquarters were established in the city, and the physician in charge of each made daily reports to Dr. Blue. Measures of eradication were then recommended by him to the local Board of Health, which ordered these measures to be carried out.

"It is not a profession, it is a trade that the doctors ply to-day," recently declared an emotional preacher. It is not the practitioner of a profession, who, with his commission to heal from on high, goes into a household and demands his fee of \$500 or \$1,000 before he will apply the knife to the cancer, the anæsthetic to the wound. Such practices ought to be condemned from every pulpit, every rostrum in the land. The Government ought to step in and prevent them." We have not been aware that such practices as these are very general in the medical profession; we know they are not.

Chimpanzees are now quoted at \$150 each; and they are very scarce, even at that price. From the point of view of the scientific experimenter this is regrettable. Only thus can we ascertain in a measurably satisfactory way how certain antitoxins and bacillary emulsions affect the human subject. Prof. Metchnikoff, it is reported, is particularly worried. This always brilliantly original man is on the track of the germ which he believes causes appendicitis; and he needs the chimpanzee for his investigations. But the creature comes high, even for the generously endowed Pasteur Institute.

Dr. James Carroll died recently in his home in Washington. He was a member of a commission which was sent to Cuba to study yellow fever just after the close of the Spanish war. In order that the stegomyia might be fixed definitely as the medium of transmission in yellow fever, he allowed himself to be bitten by a mosquito that had been infected from three distinct cases. Four days after being bitten he developed the fever. His last illness was the direct result of his work in the study of tropical diseases. Dr. Carroll, "Major and Surgeon," was appropriately buried with military honors in the national cemetery at Arlington.

The tracheotomy wound is not to be sucked, declares *The Hospital*; the surgeon is almost certain to become infected by this dangerous procedure. The immediate dangers of a tracheotomy seem always greater than they really are. Even with cessation of breathing during the operation, life may nearly always be restored by opening the trachea with all convenient speed, and then, without trying to introduce a tube, doing artificial respiration while the edges of the trachea are held apart. Blood can be prevented from clogging up the trachea by making the opening in it sufficiently large, and by bringing it up to the edges of the skin incision at once. Any membrane blocking the tube can be removed with a feather or be picked out with a pair of laryngeal forceps.

TO OUTFLANK CONSUMPTION.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.,
Late Professor of Obstetrics and Dean of the Medico-Chirurgical College.

THE Quaker City has ever ranged along the front line in medical advance. The Keystone State is at this moment actively enlisted in the sanitary and preventive crusade organized to outflank the insidious invasions of the direful white plague among the people. Yesterday there was unveiled, on the west plaza of City Hall, the bronze statue of the late Joseph Leidy, M.D., the distinguished naturalist and teacher of anatomy, who, by the merits of his worth and work in science, had shed unfading luster upon the medical profession in the city of Penn. This statue stands near one side of a similar statue of Girard, the munificent founder of the Girard College colony for orphan boys of this commonwealth. I opine that within half a century hence, on the other side of this Girard memorial may be unveiled the statue of another illustrious figure, made famous by his championship of the relief and suppression of consumption among population—his name is Henry Phipps, humanitarian philanthropist, at present head and front in financing the aggressive movement against the destructive march of the tuberculosis plague that mercilessly waylays human life. I also even hope that the day will come when at the side of Phipps will be erected a supplementary statue to the memory of Dr. Flick, the active, energetic lieutenant of Phipps, and who is devoting his life to developing in practical demonstration the mighty details for the study, treatment, and prevention of tuberculosis as proposed by the champion Phipps.

The Henry Phipps Institute, located in the centre of a special belt of tuberculous subjects in this city, has proved a wonderful medium for the systematic analysis of what really constitutes consumption or tuberculosis in its tragic waste of human vitality. The studious output of physical revelations by this Institute speedily upset in general previous theories of the disease—this by demonstrating that healthful air in full and continuous supply makes healthy lungs. Promotes the clearing up and healing process in lungs not too seriously affected to allow rescue. That thereby the tuberculous type of degeneration or wasting of the system may be arrested when timely afforded the degree of oxygenation that is fundamental to purification of the blood cells, and by which the festering ferment of bacteria is prevented, the machinery of abnormal waste obliterated and health restored and maintained. Each variety of official blank and card used in the work of this institution—the set in my hands numbers over forty different forms—reads at its head: "Henry Phipps Institute For the Study, Treatment and Prevention of Tuberculosis." This "study" is the most complete in scope and minuteness that was ever attempted. When admitted to the Institute every element and condition of the patient's personality are scrutinized and recorded as the basis of exact diagnosis for the start, also for later comparisons to be noted at time of re-examinations. The great actual proofs of physical degeneration wherever located in each fatal case are brought out by skillful and thorough autopsies. A detailed record of each autopsy is filed, specimens of morbid conditions carefully preserved, many of these are copied for instructive printed illus-

trations, and also said preserved specimens are always on hand for private study and public exhibition by which people in general may see for themselves the nature and results of tuberculosis in the human body. And when it is explained that the breathing of fresh pure air day and night is the natural and only potent available preventive of this disastrous disease—and furthermore the carrier of healing possibilities to all those who have not gone too far for cure, the reason and simplicity of it all beam out like the radiance of sunlight upon the concealed marauder of life.

With the genius of the Phipps idea and money this Institute was substantially located in a district of the thriftless poor, especially the foreign pensioners that have flocked into our down-town sections, where tuberculosis swarmed as thickly as flies over tainted cheese. The contemplated system of work combined a hospital and a school in one and the same institution, an excellently equipped free haven for the destitute consumptives of both sexes who were without means for livelihood or home care, but withal a school of practical investigation of the natural causes, the physical tendency and results on victims of tuberculosis. The object of all this was aimed to obtain a key to the best available means of prevention. Through the diplomacy of this great practical expedient it was foreseen that the abundance of tuberculous material for temporary administration and observation, also for subsequent demonstration by autopsy was benevolently assured for the benefit of society at large. In consideration of this bountiful homing of the needy consumptive a conditional agreement was executed with the nearest responsible relative granting "permission to the Medical Staff, in event of death at the Phipps Institute, for an autopsy." This wheel within a wheel of the whole movement was the security for magnificent success. An able staff of interested physicians was chosen for the work with Dr. Lawrence F. Flick the medical director. Of course a supply of capable nurses was necessary for the personal comfort of patients. As the opportunity to do so became known, a ratio of incurable cases in advanced stages of the disease resorted to the Institute to seek its protection and to die there. The number of cases autopsied the first year of the Institute's existence was fifty-five. The number the second year was eighty-eight. Sixty cases were autopsied the third year. I have no report of autopsies performed during the fourth year which ended on February first, 1907. But allowing sixty autopsies for last year, and forty for the present year to present date, numbers at least 300 cases of pulmonary tuberculosis autopsied at the Phipps Institute since its organization. Full reports on all the findings have been recorded. The many scores of pathological specimens that have been preserved for object lessons constitute the most important and instructive collection ever exhibited for study in Philadelphia.

The wards of the Institute are intended only for advanced cases of tuberculosis. The prospective autopsy appealing to the school of research and study. Patients do not die in the early stages of consumption, hence there is no autopsy available at the beginning of the scourge. But autopsies often enough indicate what beginnings were like, and forcibly suggest what might have been done to enable nature to bridge over the breach and hold the fort of health and use-

fulness for many years to follow. The earlier and smaller abscesses in the lungs were found healed over or sealed over by fibrous deposit of defensive tissue whereby cure might have been attained had conditions of breathing-air and occupation been made favorable for flanking the danger. But as the points of degeneration coalesce and cavitation enlarges, the tuberculous process overcomes the conservative energies of nature, the increase of the extent of fibrous bands restrict the expansion and bar from the remaining lung cells the aëration and purification requisite for the welfare of the blood, and hence for the entire body which needs to be nourished by the blood, and hence again the march of decay and waste goes steadily forward without arrest till the pathetic scene is closed by death. With the resulting lack or loss of purification by health-giving air in the lung cells, nothing can logically follow except the retention of tuberculous elements in the blood which then find lodgment in other organs of the body as receptacles for the general spread of the disease and surrender of life: The lungs are the central factor of examination. Thence is pursued the involvement of various other organs by extension of the tuberculous process or secondary transformations induced as result of the disease.

Microscopic findings of tubercles in the liver, the kidneys, the brain, the spleen, the pleura, the heart, the ovaries, the testicles, the peritoneum, et cetera, for the entire body. If tubercles are not actually found, amyloid changes are noted as diverging effects or results of the morbid conditions. Tubercles and tuberculous ulceration of the intestines are common in these protracted cases which come to the autopsy. As regards the frequent annoyance of loose bowels in cases of consumption, it is my own belief that the patient frequently swallows some portions of the sputum expectorated from the tuberculous lung. This sputum glides into the intestine direct before the gastric juice of the stomach has rendered inert the tuberculous element swallowed. Not a particle of expectorated material from a tuberculous lung should ever be swallowed and thus returned into the organization; but how many will swallow fragmentary portions of decayed matter, which will become mixed with the nutritive ingesta and be floated with the blood to every organ of the body, and there develop other and yet other nuclei of degeneration! Holding this view, I am not surprised that autopsy reveals tuberculous meningitis in proximity of distributing arteries of the brain, nor that the mental functions so materially weaken or take on abnormal irritability in the progress of tuberculosis. On the point of reinfection through the bowels by the swallowing of sputum waste, autopsy has shown repeated instances of tuberculous ulceration of the appendix, evidently as secondary to the pulmonary condition. Rot and the bacilli developed by rot in the human organization cannot long be retained without general injury to the system, and then is so often denominated "blood poison" on the provocation of a mere scratch, or the evident failure of an operation, when the operation is pronounced by the operator "a success," but the result is a failure.

Autopsies also prove that the lymphatic glands largely share in the perversions of tubercular taint.

Scrofula is but a name; tuberculosis is an underlying fact. The heart is a very susceptible organ in the struggle of tuberculosis. I have felt the wrist of my consumptive patient and given encouraging prospect of continued life by saying: "Your heart-beat shows no feebleness; eat all you can to keep up strength." Autopsies show that in three-fourths of cases of tuberculosis the heart muscle cells are hypertrophied—evidently the result of increased demand on the heart's action because of the abnormal condition of the lungs. Autopsies have shown, furthermore, that no tubercle bacillus, so-called, is found in the examinations of the heart muscle. The pleura does not as a rule fare so well—in many cases it being obliterated over the lung and in other cases tied by adhesions. Old fibroid pleurisy, acute purulent pleurisy, encysted pleurisy are all found, and explain the source of pain and abridged respiration. Adhesions limit the lung play in respirations and in the paroxysms of coughing. There is no happiness in the exigencies of consumption. A master monster crushes the comfort and joys of life when there has been no arrest of the despoiler's progress. Hence, again, the Phipps Institute stands for the study and prevention of this insidious and destructive form of degeneration. Probably I can render some of my readers no better service on the subject than to draw attention to brief outline of positive knowledge revealed by recent autopsies. I have viewed and reviewed the morbid pathological specimens delivered by the Phipps Institute. Without such object lessons, we behold the externals of consumption, we hear the choking cough, we witness the disgusting expectoration, we see the ravenous gnaw of emaciation, we endeavor to administer comfort and hope, but we guess at all the rest. The primary object of the Phipps school is intended to open our eyes to exact conditions, to widen the sphere of our intelligence, to inspire us with a recognition of the supreme values of hygienic breathing-air as a preventive, as an arrester, as the only common sense healer in tuberculosis.

For the present paper I must now pass from the vast importance of autopsies as educators in tuberculosis. Harking backward, there was a suggestive precedent to the radical idea of the Phipps Institute for the direct study of consumption. The work of affording free care for poor consumptives began in the zeal of a pious clergyman, who organized a parochial committee to devise practical ways for the relief and comfort of poor consumptives in his own parish. From that humble start, in the progress of a few years, the entire Commonwealth of Pennsylvania has been enlisted in a counter march against the subtle incursions of the white plague among population. After six years of experiment, this Society wisely turned its face towards the natural betterment of fresh air for consumptives, and in an extremely modest way the White Haven Sanatorium, on the sun-faced slope of the mountain between the turbulent waters of the Lehigh and the placid valley of Wyoming, had its remedial start in an old-fashioned barn amid a vast area where the atmosphere was rich in native oxygen and sweet with ozone. Starting with the accommodation of only a few beds on the barn floor, by additional buildings and enlarged accommodations, aided magnificently by repeated pecuniary appropriations through the

Pennsylvania Legislature, by the service of shacks, pavilions and cottages, the staff of the Sanatorium and five hundred and forty patients were maintained last year. Fortified by State aid which was reinforced by donations of individuals, the capacity of the Sanatorium has expanded to quite two hundred beds. Also the grounds of the institution have been pleasingly improved, a hot house for plants built, a farm department and chicken department developed for the promotion of outdoor exercise and diversion as well as for Sanatorium support. The farm of two hundred and thirty acres affords ample scope for developing the utilities of the Sanatorium. Fresh eggs constitute an indispensable element of nutrition for tuberculous cases. Hence a chicken house of one thousand chickens, and a fire-proof incubator house add substantial value to the White Haven equipment for its great mission. Besides the free system of service, a pay department has been added for the abler class of patrons. With numbers thus swelled the society maintained seven hundred and fifty-one patients during the last year. Dr. Flick is President of the board of directors. The able staff and active managers are Philadelphia gentlemen. Advanced cases of consumption are not admissible—the Philadelphia Institute being their appropriate destiny. Mr. Henry Phipps, who had been an exceptionally liberal contributor to the development of the White Haven fresh air enterprise, made a personal visit to that Sanatorium. At once he was convinced of the prime necessity of an Institute located in a hotbed of tuberculosis in the city for the care of advanced or hopeless cases, and for the minute study of the peculiar lesions of the disease through autopsy, and there we overtake the establishment of the Philadelphia Phipps Institute. The State Board of Health was then legislated into active operation and Dr. Samuel G. Dixon appointed Medical Director. At once he joined hands with the Phipps and Flick idea of taking athletic grasp of the problem of consumption. All intelligent observers knew that Koch's lymph cure, so heralded, did not fulfill the prospect claimed for it as either preventive or cure. Medicines had been a perpetual disappointment. There was no drug treatment worth the bottles that contained them. No bacilli eradicator devised in the laboratory of scientific theory could be exploited without harm to the patient. The remedial beneficence of nature and natural laws must at last have recognition and their practical application as the only normal defence against tuberculosis and its attendant or following bacilli. And there we are again to the sanitary safety of fresh or pure breathing-air.

It is estimated that one hundred thousand persons in Pennsylvania are suffering with tuberculosis. Under the direction of Dr. Dixon, State Health Commissioner, a campaign will be carried into the very homes of the afflicted for rescue from the snare of consumption. Patients at home in the incipient stages will be treated by the State free of charge. Dispensaries all over the State where tuberculosis is prevalent will be established. Dr. Dixon expects the number of these for incipient stages to reach one hundred and fifty, and houses of refuge will be provided for those who have become physically disabled, but timely for a multitude who may be rescued to spheres of future usefulness. In these places the wage-earner will be told what hygienic rules

to adopt, how to ventilate his sleeping-room, what diet to follow, so that he can cure himself in his own home—in case he can envelope his lung cells with decent breathing-air. Competent physicians, working under Dr. Dixon's direct supervision, will be at dispensaries, and the opportunity for studying the disease at first hand by autopsy specimens will attract forceful attention on the part of people and physicians with substantial results. Dr. Dixon now has fifty patients with tuberculosis under treatment in the Mont Alto Sanitarium, and within two weeks there will be one hundred and fifty receiving the fresh-air treatment there. Twenty-five big tents were first used, but substantial buildings are in course of construction for the accommodation of five hundred patients. A second sanitarium is to be established in the western part of the State by Dr. Dixon. The Pennsylvania legislature appropriated six hundred thousand dollars for the establishment of free sanitariums to be located in forest locations, preferably those belonging to the State already, where the poor may be cared for. Besides the liberal appropriation mentioned for the sanitariums themselves, there are four hundred thousand dollars available for dispensaries. In line with dispensary work, various night clinics have been instituted for the benefit of the working class in the mill district of Kensington, Philadelphia—these in addition to the day clinics. Kensington is dense with factories, and also prolific of tuberculosis. Homes of patients there will be fumigated without pay, and a visiting nurse will attend patients at their homes in needful cases.

Kensington is known as America's greatest mill or manufacturing district of Philadelphia. This area contains four hundred thousand population. Money-getting owners of old factories would have suffered a slump of business prestige if officially notified that every shop which does not provide the proper number of cubic feet of air for workers is a natural death-trap to those in their employ. Mill workers in the Kensington district will hear this week the beginning of a noonday or lunch hour course of lectures on the best methods to prevent and cure consumption. The people have been allowed to blindly stumble along in ignorance, and hence the continued multiplicity of tuberculosis cases among factory people. The Kensington Free Dispensary for the treatment of tuberculosis will work in conjunction with the Kensington branch of the Young Men's Christian Association. The Dispensary is connected with the Free Hospital for Poor Consumptives and the Phipps Institute, and consequently is an elaboration of the ideas of Dr. Flick and his associates. The addresses by physicians will be made at noonday from the back of a wagon, two daily from factory to factory till all have been visited. Then the field will be gone over again. The wagon will be fitted with a traveling anti-tuberculosis exhibit, to illustrate the manner of keeping homes and shops free from tuberculosis. Another exhibit will also show how a consumptive should be housed, fed and protected against the dangers of self-infection and of the personal menace to others. It will be explained that consumption costs the community of Philadelphia twenty thousand dollars a day or the total of seven millions a year! This estimate is based on an allowance of only one dollar a day in the loss of wages by each consumptive now living in this

city, and a further allowance of one dollar a day as cost of maintaining each such patient. So we see of what vast account is the social and economic problem of consumption. And there are the inevitable funerals! A thousand deaths costing an average of one hundred and fifty thousand dollars! Through no other channel is the waste of life so great. And nevertheless, tuberculosis is a preventable disease when properly and timely understood. What a mysterious puzzle! Fresh air and sunlight! Plenty of soap and water indoors, continuous ventilation of all the house, and personal hygiene, abundance of wholesome food, avoidance of excessive fatigue and of physical abuses! God saving the people to usefulness and happiness through the media of natural laws without doctors or drugs! A Sister of Catholic faith is in general charge of the Kensington Free Dispensary work. An advisory board of fifteen women and five women's auxiliaries, with a total membership of three hundred assist in this Dispensary work.

In the course of its campaign against consumption the Pennsylvania Society for the Prevention of Tuberculosis has mailed circulars to all the ministers of Philadelphia, asking their aid in bringing to attention of all the people the exact situation and methods of repressing the disease. Representatives will be sent by the Society to address the various congregations. It is suggested that classes of patients be formed wherever the disease exists to meet nurses and physicians for instruction. Notices of out-of-door employment for consumptives have been circulated in order that such persons may have the benefits of open air. The Presbyterian Hospital has taken up the class plan in the crusade. It is believed that thousands of cases may be early reached through the hospital plan. Every case of consumption under treatment in the dispensary department of the hospital, or that hereafter shall be brought to the attention of those in charge of the dispensary, will be referred to the tuberculous class, which will meet on three afternoons of every week. First there will be a close physical examination of every person offered as a member of the class. Then there will be instruction in approved methods of prevention and treatment. Finally there will be visits to the homes and working places of the class members and a report of the conditions found there, together with suggestions for whatever improvements of these conditions may be deemed necessary. Competent physicians connected with the Pennsylvania Society will have charge of the physical examinations and general instructions. An experienced lady nurse in the Presbyterian Hospital, and who was cured of consumption in a sanitarium in the Adirondacks, will have charge of the home visitations, and the reports and suggestions based thereon. Two other large hospitals will soon take up the same line of work—having already their plans for classes well under way. It is anticipated that class work in tuberculosis will be extended until every hospital in Philadelphia will be engaged in it. Homes of those afflicted will be examined as to their fitness for the establishment of outdoor quarters for patients. Shacks and tents will rise on large outdoor grounds where permissible. Window tents will be made, and the patients instructed practically and intimately in the values of cleanliness, fresh air, sunlight, rest and

plenty of good food.

The class in the Presbyterian Hospital will be the first exemplification in Philadelphia of the plan worked by Dr. Pratt, of Boston, in the Emanuel Church class in that city. Dr. Pratt is expected to speak in the lecture hall of the tuberculosis exhibit in this city, to be opened soon. Similar in purpose and scope is the maturing social service department of the University of Pennsylvania Hospital. Under the enlightened management of Dr. Musser, instead of confining the inspection of homes and other environment to tuberculosis cases only, the social service department investigates cases of other diseases. Miss Cannon, of Boston, superintends these inspections and reports suggestions applicable to each case in the homes of patients. Thus the hospital and the home are brought into close co-operation. The interest of the labor unions of the city and of the State is to be directly enlisted. The Pennsylvania Society is said to have already made arrangements for talks by prominent physicians to about twenty unions. Most of these talks will be made on meeting nights of the unions. Others will be delivered on Sunday afternoons at special meetings called for the purpose of anti-tuberculosis instruction. Means of prevention will be the central theme, together with sane methods of prevention in the home and workshop, also the most approved methods of treatment by personal care, fresh air, sanitary ventilation, abundance of nutritious diet. The ravages of tuberculosis prey most heavily upon the wage-earning class of community. This class, representing the country's strength, is the hope of any government. Every laboring man or woman has a distinct value to the Commonwealth. The work of hand and brain in promoting the industries of the land make the real wealth of the nation. Instead of waiting passively for consumption to wipe out the energies of the people, a vigorous crusade of enlightened self-defence is the individual right and a guarantee of social strength. About ten thousand persons a year die in New York City from consumption. It has been estimated that four hundred die every day in the United States in the grim harvest of tuberculosis. The equivalent of ten regiments of soldiers die in New York City every year. More than twice the standing army of the United States fall silently in the swath of death each year without a victory won for any material good for home or country. In large cities, in thickly populated districts, in houses overcrowded and fetid with toxic breathing-air, in the blight of carbonic oxide gases from burning fuels and illuminants for heating and lighting closed rooms, ignorantly, stupidly the thoughtless population go to rot with tuberculosis, are consumed by the natural degeneration of starved non-aerated blood cells. There is no good sense in such depravity of human conditions!

Drs. Lawrence F. Flick and Joseph Walsh, of the Phipps Institute, have recently returned from the International Conference on Tuberculosis in Vienna. Dr. Flick reports that while research work and experimentation have been carried farther in Europe than here, our application of modern knowledge in practical crusade against the spread of tuberculosis is taking the leading position. Dr. Flick reports that next to the newly aroused American crusade against tuberculosis, the Japanese manifested the most progressive activity

on the problem of consumption. Through the influential prestige of the American delegates, the next international congress on tuberculosis comes to Philadelphia next year. The most important of the Vienna discussions was that on "The Ways of Infection in Tuberculosis." Upon the ultimate decision of this question must naturally depend practical campaigns for prevention. The late theory that tuberculosis of the lungs was caused only by inhalation of tubercles has been vigorously disputed. Calmette and Von Behring insist that tuberculosis of the lungs is caused most often by ingestion or the swallowing of the tubercles. But other causes have received recognition, as illustrated by "miners' consumption," or where particles of coal dust and accumulated smoke deposit from miners' oil lamps and blasting powder as profusely discharged from the lungs with the sputum. The contact of spoiled breathing-air in the lungs never conduces to their preservation. Degenerated lung tissues generate their own bacilli as the softening proceeds. Heal the lungs, and the bacilli have vanished. Dr. Flick and his ardent followers have yet to catch on to the rational process of the production of bacilli through the depraved condition of the non-oxygenated blood cells of the lungs and general nutrition; and then there will be straight steering without further quibble as to how the tubercle bacilli get to where they are found in consumption. The lungs take up the debris of the blood. And there we are at the start of tuberculosis. In Calmette's experiments with guinea pigs, he fed coal dust to them and subsequently found deposit of coal dust in the lungs of the animals. He thought he was refuting the popular doctrine or theory of the production of tuberculosis by the media of bacilli inhaled. But this exploit with coal dust did not prove that the bacilli found in consumption must have been swallowed in order to start the disease. Neither did it disprove that the cause of consumption must necessarily be preceded by introduction of bacilli inhaled. What did it prove? It was a positive demonstration that injurious material circulating in the blood cells is naturally and eventually conveyed to the lungs, and that if not there regenerated by the oxygenation of good breathing-air, the condition presently goes to the bad and the lungs themselves begin to suffer. Bad air cannot heal bad lungs. And there begins the next demonstration, namely, the modern open air treatment in and by good air, pure air, for the relief and for the cure of the lung trouble. Were this not so, there would be no such thing as the prevention of consumption by pure breathing-air habit or treatment. Hence, again, the aptness of Dr. Ullom's address to an influential labor union. Four hundred members were present though it was election night. "You working men," said the speaker, "can do more to stamp out this plague of to-day than any other force now enlisted in our crusade. If you will insist upon sanitary workrooms, if you will be careful not to spit on floors or walls; if you will insist upon plenty of fresh air in your homes and shops; plenty of pure milk and fresh eggs; if you will avoid intoxicants and spend as much time as possible in the sunshine—and see to it that your families follow the same prescription, we will have inside of a year in Philadelphia a decrease in the number of consumption cases that will astonish the world."

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IS RADICAL (OPERATIVE) SURGERY JUSTIFIABLE IN CANCER?

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AS the superscription indicates, the *raison d'être* of this dissertation is principally to incite further discussion upon the subject of cancer, with especial reference to the advisability of undertaking radical surgical operations in attempted eradication thereof, particularly in other than the incipient stages of the disease.

At the outset the writer wishes to profess practical agreement with those who advocate radical operative intervention for cure of cancer involving superficial structures of the body, e. g., epitheliomata of cutaneous and mucous surfaces where incision may be safely accomplished, but the fact must not be permitted to pass unobserved that even under such seemingly favorable circumstances, provided there be no mistake in the diagnosis (i. e., if the growth be typical cancer), it is oftentimes impossible to effect enduring relief by surgical removal. And this statement will apply with greater force to cancer of the female breast, the rectum, etc., although such have been classified by some authorities as purely superficial and therefore readily amenable to adequate surgical treatment.

It is not the purpose of the writer to discuss the etiology, histology, pathology, symptomatology or multitudinous varieties (so-called) of malignant disease, and the generic term "cancer" will be employed instead of wasting valuable space in attempted classification since the latter could add nothing of interest or importance to this contribution of general inquiry. Moreover, it must be borne in mind that the observations which follow refer particularly to cancer involving glandular, internal and deeper structures in contradistinction to epitheliomata of cutaneous and mucous surfaces which have already been mentioned.

It is recognized that one of the most perplexing and difficult problems which confront the surgeon is the diagnosis of cancer, and it is not a source of wonderment that occasional errors occur; e. g., who cannot recall instances in which lesions of the breast, liver, stomach, uterus, intestine, etc., have been diagnosed by the surgeon (and the ubiquitous "expert" pathologist) as cases of undoubted cancer, where the patients declined surgical intervention and lived to ripe old age, the supposed cancers promptly and completely disappearing under simple remedial measures? Of course it is admitted these were merely mistakes in diagnosis, as cancer is not a self-limited affection nor (unfortunately) does it disappear spontaneously; and it is likely such diagnostic errors will continue in evidence so long as mortal man remains fallible!

The data presented by those who advocate and practise radical surgery in attempted cure of advanced cancer are practically valueless from the standpoint of accuracy and reliability, since but rarely do they embrace the life-history of patients beyond the operating table; and in those exceptional instances where the post-operative history is reported the correctness of the original diagnosis is always open to serious question provided the patient be alive at the expiration of three years! This criticism may appear unjust, but the writer is convinced of its truthfulness and believes his position can be substantiated by unequivocal facts.

As has previously been remarked, all statistics are distinctly unreliable and medical statistics are never entitled to unqualified exception: Authors are prone to rush into print with their apparent successes, whereas their errors and failures are accorded but the meagre publicity incident to "six feet of mother earth"; their apparently successful results are announced prematurely that there may be no mistake about their securing proper credit therefor, and if perchance the patient succumbs the following day the matter is regarded as so trivial that their statistics remain uncorrected! "The operation was entirely successful. . . . but the patient died," is a trite saying, which might be appropriately applied to a multitude of instances of which we know not. . . . from the operator!

Not many years ago Sands admitted that he had never observed a single case of breast cancer—save one—in which the diagnosis had been proven by microscopical examination where the patient lived beyond the three-year limit after operation; the younger Gross did not succeed in saving the life of a single patient in his first hundred operations for cancer of the breast; and Agnew confessed that he operated on breast cancers solely for the moral effect on the patients, that he believed the operation shortened rather than prolonged life. If statistics of other older operators were honestly and conscientiously presented it is believed careful analysis would demonstrate, making due allowance for probable diagnostic errors and applying the three-year limit, that the pessimism of Agnew was warranted by facts! The writer purposely omits consideration of statistical data furnished by other of the older surgeons, such as Yandell, Billroth, Volkman, et al., as to their success or failure in operations for cancer, since nothing of value could be deduced so far as this paper is concerned from discussing their work or quoting their results.

More recently a busy surgeon well known to the writer made the following suggestive remarks anent the same subject: "It is not easy, in fact I do not know that it is possible, no matter what a man's experience is, to be certain in his diagnosis by the physical appearance of a breast that has a tumor in it, whether it is malignant or non-malignant! Experience helps materially, but to say that we are able to diagnose malignant and non-malignant disease in this situation from the physical appearances would be claiming too much. Inflammation of the breast, chronic mastitis, etc., sometimes pursue such a course as to render impossible differentiation between a condition so trivial and so easily understood and malignant disease! Non-malignant troubles of the breast, cystic degeneration, fibroid tumors, adenomata, lipomata, etc., are not easily separated from the carcinomata, scirrhus and encephaloid disease. . . . I do not believe that malignant tumors of the breast, judging from my own experience, and from operative work in this line that I have seen, where the disease has invaded the axilla, or where it has invaded the supra-clavicular glands, is ever relieved (cured) by an operation! I have never seen a single case in which recurrence did not take place: I repeat that I have never seen a case of typical cancer of the breast in which an operation for removal of the mass was performed in which recurrence did not take place,

no matter how complete the operation nor who the operator!"

There is no case of cancer of the breast upon which we may operate where we can promise the patient anything. We do not know in what case there will or will not be a recurrence, nor do we know how soon recurrence will take place in any case (Frank).

The surgeon has failed to do a great deal in such cases, and this may also be applied to cancer in other situations, excepting possibly epitheliomata about the face and mucous surfaces. When a surgeon operates for cancer of the breast he never knows how much good he is going to do. However wide or however deep he may go, he cannot state positively how much good he will do in prolonging life, or how soon a recurrence of the disease will take place! . . . I question very much, with our present ability to handle these cases, whether the very wide operations are justifiable (the Halsted operation, for instance) for the reason that we cannot promise a sufficient amount of relief or immunity from a recurrence (Vance).

In a monograph published a few years ago one of the foremost surgeons of the country admitted but six per cent. of local recurrences following radical operation for breast cancer in a series of fifty selected cases, but as only two of the fifty patients then living had passed the three-year limit after operation it can be readily seen that his statistics possess little practical value. And is not the same statement equally applicable to the statistics presented by other operators concerning not only cancer of the breast, but cancer in other situations?

A description of the mutilating radical operation advocated for cure of breast cancer might be interesting in this connection, but would be distinctly out of place as the scope of this dissertation does not contemplate operative technique. However, it may be remarked *en passant* that is the most extensive surgical procedure ever witnessed by the writer (unless it be the operation recommended and sometimes practised for attempted cure of cancer of the rectum), and it is exceedingly questionable whether its performance is justifiable. When the disease has progressed to the stage when such mutilating surgery is presumed necessary for the possible removal thereof, has it not extended far beyond possible operative limits?

It is the consensus of opinion that the life of a patient with typical cancer involving an internal or glandular organ rarely exceeds three years if the disease is permitted to take its course, and the rule is that death usually occurs much earlier. From available information it does not appear that the invocation of surgery has markedly prolonged the lives or mitigated the sufferings of patients the subjects of cancer in the situations mentioned, therefore the benefit accruing to humanity from operations that have been (and are being) undertaken for the cure of cancer under such circumstances would seem practically *nil*. If it be true that surgery is powerless to prolong life or mitigate suffering, then why subject the patient to operation?

In emphasis of the foregoing statements brief citation of one unfortunate example may not be entirely devoid of interest: Miss C., aged twenty-six years, consulted her family physician concerning the nature of a small nodule on the inner aspect of the right arm near the elbow. When first noticed the growth was small,

freely movable with the skin, feebly attached to underlying structures and but slightly tender on gentle manipulation. Later it became distinctly painful, appeared more intimately connected with the deeper tissues, and increased perceptibly in size. A surgeon examined the tumor, and, fearing possible malignancy, advised immediate excision, which was done by an elliptical incision which was supposed to extend beyond infiltrated tissue in each direction. A few months thereafter secondary nodules appeared in the right axilla, the outer quadrant of the right breast, and also near the original cicatrix.

At this time there could be no mistake as to the diagnosis, although the general health of the patient was unaffected, and the same surgeon performed a second operation. His incision was over eighteen inches in length, extending from site of the original nodule near the elbow through the axilla nearly to the manubrium sterni, the right breast was then encircled, going wide of infiltrated tissue, and the entire cancerous mass, including pectoral muscles, fascia and axillary lymphatics, carefully removed. It was thought this extensive operation would most certainly eradicate every possible focus of the disease, but before the enormous granulating surface had completely cicatrized recurrence had taken place throughout almost the entire operative area from sternum to axilla. The growth developed with astonishing rapidity, and in a short time the patient was again placed on the operating table and a third effort made to prolong life. The recurrent cancerous development and the remaining soft tissues down to the ribs on that side were carefully curetted away, the axilla was again invaded, all lymphatic glands left at previous operation were extirpated so far as it was possible to locate them, including those in the supra-clavicular space; in fact, mutilation was so extensive as to seriously interfere with the blood supply, and circulation was *nil* in the right arm when the operation was completed. The patient succumbed within a week and less than one and a half years subsequent to development of the original nodule near the elbow. Was such extensive surgery justifiable in this instance, and did it not shorten rather than prolong life?

In further illustration of the rapidity with which the underlying structures sometimes become implicated in cancer of the breast, note the following from the pen of Halsted: "In one winter it was my fortune to have three very small cancers of the breast to examine. They were so small that I could mount sections of the entire tumor on the ordinary German form of object-carrier. Two of these cancers had already invaded the muscle (pectoral)."

The fact does not admit of disputation that if good is to be expected from the invocation of surgery in attempting to cure cancer in any situation, the operation must be performed early in the history of the disease and be sufficiently extensive to completely remove all infective foci. But in how many instances can the most erudite surgeon be certain that this desideratum has been accomplished? Incomplete surgery is never permissible in cancer in any situation except (in rare instances) as a palliative measure or for cosmetic effect, since any operation which does not totally eliminate every focus of the disease induces more rapid proliferation and reproduction of the remaining cancer cells. The unfortunate case cited in the foregoing emphasized this fact in such degree as to create a lasting

impression. Has it not been demonstrated that any cancerous tumor if partially extirpated, incised, or otherwise injured by manipulation, will develop with vastly greater rapidity and malignancy than before the institution of such treatment? Senn says: "From a prognostic standpoint, imperfect removal of the primary tumor by caustics or by the use of the knife must be regarded as a measure calculated to aggravate the local conditions and to shorten life."

In a clinical lecture on rectal cancer one of the leading American surgeons of to-day made the following significant statements: "When patients apply to us for treatment for cancer of the rectum they have every confidence in us; they say, if it is necessary, to go ahead and operate, but they do not understand the gravity of the operation that is advised and practised by many surgeons. When the operation is completed, what have you done? If we could say that we have prolonged the life of our patient perceptibly, that we had not left him in a worse condition than when we began, then every reasonable surgeon would feel that he had done something. . . . Well, you will say, what shall we do; will the man not die unless we operate? Yes, he will die without operation, and he will die if the operation is carried out; he will die much sooner if we were to do such an operation than he would if we do not! Even if he escaped death at the time of the operation or as a result (because, as I have already indicated, it is a very serious operation), he would die sooner than if left alone. . . . I am as much opposed to giving opium in cases where it is not called for as any man living, but in cancer of the rectum it is a *sine qua non*. . . . As you see these miserable people fretting away the most miserable of lives, in constant agony, increase the morphine still further, and let them become opium-eaters! This does not sound very hard, because they have but a few months to live, and if they are living in great torment from pain and you can quiet the pain, why not do it? Therefore I am in the habit of making these people morphine-eaters! In cases where there is no chance of relieving the cancer by surgical or other means, I increase the morphine until they can take it *ad libitum*! Is not that far better than to do surgical operations from which no good can possibly result, but that only put the patients in greater agony?"

In the opinion of the writer these suggestions applied to typical (advanced) cancer in other situations would not be distinctly inappropriate, especially where the disease involves internal or glandular organs, since the majority of such cases are palpably inoperable when first observed by the surgeon, e. g., in how many instances has surgery been successful in effecting enduring relief (cure) in undoubted cancer of the uterus, the liver, the intestine, the pancreas, the ovary, the stomach, or even the female breast? "In the writer's practice less than twenty-five per cent. of the cases of carcinoma of the uterus were found within the justifiable limits of a radical operation. . . . The writer is an ardent advocate of all legitimate attempts to eradicate carcinoma by operation, but is satisfied that the *furor operativus* has been carried too far at the present time in this department of surgery as well as in nearly all others." (Senn.)

It is unquestioned that if success is to be expected from extirpation of cancer by radical surgical measures, the

operator must "cut wide of the mark," i. e., he must be absolutely certain that all infiltrated (or infected, if that be preferable) tissue has been excised; but how is it practicable to accomplish this desideratum when dealing with cancer of the uterus, the intestine, the rectum, etc., where by structural contiguity or anatomical continuity the disease quickly invades tissues the removal of which is manifestly impossible without literally "amputating the patient at the middle?"

"Carcinoma involves by local extension all tissues and organs irrespective of their anatomical structure. . . . Generalization of carcinoma takes place in consequence of the entrance into the general circulation of carcinoma-cells or fragments of tumor tissue, which, when arrested anywhere in the arterial system, constitutes carcinomatous emboli from which the metastatic tumors grow. . . ." (Senn). If these observations be literally true, then who can determine just when a cancer has ceased to be local and has become distinctly general? It has been argued that the majority of cancers are primarily and essentially local because they are encapsulated, and that the individual is thereby protected against systemic invasion; but is such an argument tenable in view of the well established facts, (1) that some varieties of cancers are never encapsulated at any period of their development; (2) that almost without exception cancerous tumors are richly endowed with nutrient vessels, through which circulation is abundant; (3) that in certain instances metastatic tumors develop so promptly that it is quite impossible to determine with any degree of accuracy which is the primary growth? Moreover, so long as a cancerous tumor remains undisturbed, can the most erudite clinician be positive concerning (a) the variety of cancer to which it belongs, (b) whether or not it is distinctly encapsulated, (c) whether systemic invasion has or has not already taken place?

THE HYPEREMESIS OF GESTATION.

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THE toxemias of gestation constitute a subject that is receiving more and more attention each year. Vomiting is the one symptom which always directs our attention to this condition and we are inclined to base our opinion as to the gravity of a given case upon the intensity of the untoward behavior of the stomach. Emesis and hyperemesis are by no means the only symptoms and guide for us to rely upon in making up a prognosis. This subject has considerable scope and might be discussed from several different angles and viewpoints. For example, it is no uncommon thing to run across two thousand and three thousand word articles in which the renal function is thoroughly exploited with regard to the toxins and abnormal constituents that are put down as the factors of causation. We know that these toxic elements are a concomitant of these distressing disorders of gestation, but as to whether they are a causative or a resultant force is not always easy for us to predicate. So in this article I wish to briefly discuss or at least call attention to all the causes of hyperemesis gravidarum with suggestions upon the best plan of action in the way of treatment.

Intense vomiting and gastric irritability may be pro-

duced in at least three distinct ways, viz., as a reflex from the pelvis or stomach, as a neurosis, or as an intoxication. The latter hypothesis has the greater number of adherents at this time, perhaps mainly because of the fact that eclampsia is explained in this way and the theory is extended to cover a wider range of the abnormalities of gestation. Some have gone so far as to assert that pernicious vomiting, chorea, acute yellow atrophy and albuminuria are all toxic in origin and are all the manifestation of the same toxine. A theory like this is a matter of convenience, but it hardly meets with a general acceptance. Berkeley has contributed about the most exhaustive study of this subject in recent years and his attitude is disposed to be toward that of the toxemic theory, since treatment directed along that line has been conducive of the more favorable results. There is supposed to be a toxic substance in solution in the maternal blood and on this matter most of our authorities are agreed. The source of the production of this toxine is still problematical and may be elaborated in any one of these organs or parts: The kidneys; the liver; the intestines; the foetus; the placenta; the maternal thyroid. One of the recent views is to the effect that the pernicious vomiting is due to an abnormal function of the thyroid gland in which there is an insufficiency of iodothyron. Observers claim that many cases have been relieved by the administration of thyroid extract and on this assumption is doubtless based the theory. There has also been isolated a toxic substance from the placenta of women dying in eclampsia which produces death when injected into rabbits. But both eclampsia and hyperemesis have occurred associated with vesicular mole and other untoward conditions in the absence of pregnancy, which leaves this matter in somewhat of a chaotic state.

In the type of hyperemesis of reflex origin the irritation may not be easily located and diagnosed. A hyperemic state of the uterus with a tetanic closure of the os is a not infrequent cause; also cervical endometritis, ulceration, polypus, prolapse and a malposition. Of the latter retroflexion is the more common. In fact any condition that causes high nerve tension may produce a rebellious stomach. In many cases there is nothing more pathological than the irritation due to the concentric pressure of the product of conception. This may occur in the very early days of fecundation or may occur after several weeks have elapsed. Persistent vomiting is one of the quite regular symptoms of a dead foetus.

When the cause of vomiting is mainly reflex the stomach is used simply to relieve nerve tension, for when there is a new motive force created a provision must be made for maintaining the balance between the amount generated and the amount to be utilized. The stomach is simply the route by which surplus energy is discharged and that organ may be in a sound and healthy condition. It is not a weakness of the stomach, *per se*, for hyperemesis may occur in a woman whose digestive apparatus is otherwise normal. Bretonneau states that sympathetic vomitings depend upon the difficulty the uterus experiences in distending and upon the special irritation that might result from its rigidity. Sympathetic is synonymous with reflex. A rapid formation of liquor amnii is also

thought to be a potent factor of causation. The fact that vomiting is worse in the morning has been explained on this hypothesis, as the upright posture produces a sudden hydraulic pressure upon the uterine vessels by which the uterine tissues are distended. It has been contended that a malposition of the uterus either forward or backward is a cause owing to the fact that when the woman assumes an upright position the intestines are thrown upon the uterus. Hence the morning attacks. In refutation of this theory it is a well-known fact that vomiting may come on before getting up and in severe cases may go on almost constantly. The writer recently saw a woman who had vomited day and night for three weeks, not retaining enough water to scarcely keep the renal function going. As a consequence the urine contained so much waste products and so little water that it was about the color and apparent consistency of coffee that had been slightly creamed. The os was closed with a vice-like grip and with great difficulty was probe or sound introduced. Dilatation and tamponage, however, was effected and the pernicious, death-dealing vomiting ceased immediately.

After vomiting has been thoroughly established there are many conditions that go to keep it in operation. Perhaps the psychic element is a factor in all cases of persistent vomiting. The vomiting center in the brain in time loses much of its inhibitory tone and an attack may be brought about by the slightest provocation. Suggestion then plays a significant role, and an untoward word, thought, sound or smell may be the signal for an outburst. Thus it would seem that the neurotic variety may complicate all cases of obstinate vomiting of whatsoever origin. The ganglionic centers become impressed with the *vomiting idea* and thus materially aid in perpetuating the process of gastric ejection. Another factor tending toward its perpetuity is the tissue fatigue that is superinduced by hunger and fasting. Emotion of an extreme character may suddenly start an uncontrollable vomiting. Many cases are recorded where mental shock has induced vomiting with a fatal termination without abortion having been produced. In cases in which emotion seems to have been the exciting cause of the vomiting the mortality is unusually high.

Intercurrent diseases engrafted upon the high nerve tension that is a concomitant of gestation may provoke uncontrollable vomiting, as chorea, whooping-cough and fevers. Dr. Barnes in his work on obstetrics states that in his experience alcohol quite often keeps up severe vomiting, mainly because it is a remedy so frequently used as well as greatly abused. Renal insufficiency is the one condition that every physician is inclined to suspect in every severe case. Albuminuria is usually looked upon as a basis for all eclamptic conditions, but this does not with any degree of certainty hold good in hyperemesis. Urea is as a rule deficient in the urine of these patients but there is usually present an abundance of broken down tissue that shows insufficient oxidation. The character consistency and quantity of this may be variable, but no specific toxic matter is invariably present. As stated before the ingestion and assimilation of so little water and food may in some measure account for the morbid aspect of the urine, for this fact would naturally imply that a retrograde process is going

on along the cysto-renal route. In fact the entire system feeds upon itself in these cases to the extent that there is set up a rapid disintegration of all the tissues. Emaciation follows and the vital powers wane and in fatal cases a condition not unlike septicæmia supervenes toward the end. Diarrhœa is also one of the late symptoms and is usually ample evidence of grave toxemia. In all severe cases emaciation and loss of weight follow as a result of the malnutrition.

When the earlier weeks of gestation have been passed without unusual distress and vomiting sets in after the third or fourth month, a dead foetus or some foci for absorption may always be suspected. However, it may result from septicæmia, albuminuria, alcoholism or other species of intoxication. In all such cases no subsidence of the vomiting can, as a rule, be expected so long as the uterus retains its contents, or so long as there remains any avenue for transmission of toxic matter into the blood.

The majority of cases of hyperemesis—which, by the way, I interpret to mean simply excessive vomiting—occurring in the early weeks of gestation recover without the termination of conception. However, the death-rate at all stages is higher than we were a few years ago inclined to admit. The repugnance that most honorable physicians feel about interrupting a pregnancy even when it bids fair to save a woman's life, has and always will, deter men from swerving from a reasonable conservatism in such cases. But when action is imperative in these cases if we would save life it is a matter that is up to physicians who are honest and have a clear conscience. Quacks and abortionists would be the first to wash their hands of such cases and shrink from a procedure attended by so much danger. There is even danger from timid or over-conservative men procrastinating until interference may produce an almost certain fatal issue. One of our prominent churches has always maintained a rigidly conservative attitude on the induction of abortion in this class of cases, and I was informed just recently that there had been a new ruling by the Pope which precludes the emptying the uterus to save the woman's life even in the very early days of conception. This enunciation is based upon the assumption that the life of a foetus one week old is just as valuable as that of the mother who has a number of (other) little children to care for. Said ruling also involves the idea as to whether terminating the conception will give the mother a better lease on life or not. The point is well taken, but each individual case should alone be judged from a purely medical viewpoint, and not be disposed of by the priesthood in a wholesale and indiscriminating manner.

It is indeed a matter requiring astute skill and the ability to accurately gauge symptoms to know when interference is justifiable in this class of cases. If in spite of all remedial and hygienic measures, which will be briefly enumerated, the vomiting continues unabated, with ever-increasing toxemia and malnutrition, it is pretty safe to decide upon a radical course of procedure. If coupled with these symptoms we find the following, the case is one of the utmost gravity: A pulse of 120 or 130; delirium; emaciation; Hippocratic aspect; extreme debility with a weak circulation. Some one has stated that when delirium

is present recovery never takes place. At this stage vomiting may cease and premature labor may occur, but the case is likely to proceed to a fatal termination.

Of remedies and measures calculated to control intolerable vomiting there are not a few. Every thing is "good for" vomiting of pregnancy. When the medical student runs amuck in his *materia medica* quiz he states that the remedy in question might be used for this type of vomiting. What has not been at some time tried and lauded as being the best remedy for this distressing condition? Even doctors have stomach sedatives which they are willing to swear by until they meet a case so intractable as to defy every thing remedial. If a case can be relieved by bismuth, mercury, *nux vomica*, iodine, arsenic, oxylate of cerium, cocaine, peach-leaf tea, bromide of potassium, chlorotone, cinnamon or peppermint water, atropine, pepsin, nitrate of silver, ingluvin, alkalies, acids, brown coffee, ice cream, etc., etc., it does not belong in the category under discussion. In hyperemesis palliative remedies are likely to be of but slight and temporary value. Mechanical measures are the only ones that are in any degree dependable. Cases of obstinate vomiting have recovered under the recumbent decubitus, keeping the woman in bed with her head low. The severity of such cases may be more apparent than real. Others have responded to a moderate degree of cervical dilatation followed by paintings of iodine, glycerine, carbolic acid and nitrate of silver in various combinations. The therapeutic value of this treatment depends upon the relief it affords a boggy and congested endometrium. Some relief has followed upon applications of cocaine solution to the cervix. Perhaps still more cases have been benefited by measures directed toward supporting the uterus in a mechanical way and thus lessening nerve tension.

If a given case responds to no other treatment and it is determined that emptying the uterus will give the best chance of recovery the best and safest course of so doing should be pursued. As a rule there is not an urgent demand for a rapid delivery and, indeed, there is likely to be such a low state of vitality and strength as to preclude anything but a gradual dilatation. Choice of methods are to be made of steel probes or sounds, the steel dilators of Bossi, sponge tents, hydrostatic bags, tampons, etc. If it is desired to go about the matter with some degree of expediency digital dilatation may be employed. This method is considered conservative and has always had many adherents. A moderate degree of dilatation may control the vomiting without interrupting the gestation. If the os is narrow and possessed of considerable induration it may be necessary to begin by introducing the smaller bougies and gradually increasing to larger ones. In many cases the os may for a while baffle all attempts at an introduction of anything, or at dilatation in case entrance is effected. In fact it is quite the rule for the cervical muscles to be contracted down good and tight, and it would seem that upon this contraction depends in many cases the etiology for the hyperemesis. After sufficient dilatation has been effected to insert a pledget of antiseptic gauze such insertion has, in the writer's experience, been very gratifying. Whether curettment

will be indicated in the after-treatment will depend in a large measure upon the character of the uterine contents and the salutary manner in which its elimination is maintained. As a rule thorough uterine irrigation is all that is required. Should there be a very septic condition the dull curette may be used to good advantage, but not with such a heavy hand as to destroy the endometrium. The curette is a useful instrument in skilled hands but is likewise capable of much harm if there is not kept in mind a clear conception of the structure and function of the interior of the uterus.

To summarize, I would state that the cases of hyperemesis of pregnancy that may require the induction of premature labor have a part or all of the following symptoms and conditions: More or less persistent vomiting whether the stomach contains food or water or whether it is empty; emaciation with hollow, staring eyes, and a general appearance of depression; scanty, dark-colored urine loaded with abnormal constituents; fever or other evidences of toxemia of an immediate character; a rapid, feeble pulse; delirium. Should the system show evidences of severe toxicity, as may be manifested by delirium, diarrhea or an elevation of temperature, it is the consensus of opinion that any treatment looking toward a clearing out of the uterus would be unjustifiable. Septicemia would be likely to rapidly carry the patient away. Interference in these cases must not be postponed too long if we would hope for a favorable termination. If the gravity of the case precludes radical treatment saline infusion should be thoroughly tried and nutrient enemas pushed to the limit. On the other hand, if the woman does not emaciate, but feeds upon her own tissues sufficiently to preserve a fair aspect without extreme weakness and there is an absence of the graver symptoms of autotoxemia, it is probable that she may, if skillfully managed, be brought safely through without interrupting the pregnancy.

As a general proposition it must not be overlooked that solid and semi-solid new growths do not proliferate and markedly increase in size in the absence of nutrition, and for this they necessarily depend upon products of the circulatory system, viz., blood and lymph, both of which are undoubtedly supplied in abundance to cancerous tumors.

When general dissemination has taken place from cancer in any situation, is it not unreasonable to believe or expect that the disease can be eradicated or life markedly prolonged by surgical removal of the original focus, the primary tumor, and is operation therefore indicated?

In conclusion: Since in typical cases of cancer systemic dissemination may promptly occur, not only through structural extension but via the vascular and lymphatic channels, the following queries seem pertinent: In what proportion of cases (1) will life be markedly prolonged; (2) will permanent benefit be secured, (3) will mitigation of suffering be obtained, by the invocation of surgery?

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PRACTICAL CONSIDERATION OF UMBILICAL HERNIA WITH REPORT OF AN INTERESTING CASE.*

BY LOUIS FRANK, M.D., LOUISVILLE, KY.

UMBILICAL hernia may occur at any age. It is not unknown during fetal life, and in such cases the intestine has been severed in dividing the funis. In children it is due to imperfect closure of the umbilical structures, the protrusion being through the still patulous openings. In adult life it is encountered almost exclusively in females who have borne children, the cause being abdominal distension from the uterine enlargement.

The contents of the sac in umbilical herniæ may vary the same as in other forms. Whether the condition be congenital or otherwise the omentum is not infrequently adherent, but the ring is usually of such size that strangulation of either intestinal or omental contents seldom takes place. Incarceration may repeatedly occur and be relieved. When strangulation takes place gangrene rapidly supervenes.

The surgeon who operates upon strangulated umbilical hernia is in the majority of instances confronted with innumerable difficulties. A vital question which invariably arises is, what shall be done with the strangulated intestine? It is almost impossible to establish an artificial anus, and even if this procedure were successfully carried out the nature of the bowel contents is such that the patient would necessarily starve.

Not long ago I had the misfortune to be called to see a patient suffering from strangulated umbilical hernia. No surgical emergency could have been more serious, and although I anticipated strangulation with its attendant difficulties, of course I could not foresee the conditions to be encountered in the operation. The smaller loop of intestine resected was between fifteen and eighteen inches, and the longer loop fully thirty inches, in length.

The patient, a female, aged fifty-two years, the mother of six children, had a large tumor in the umbilical region, to the right of the median line. The history was that she "had always been troubled with the rupture." Incarceration had taken place but had been reduced by taxis. An abdominal binder had been worn, but this did not perfectly retain the hernial contents within the abdominal cavity. She was a very large, fat woman, and when seen the hernia had become fixed and was extremely painful. She had attempted by hot applications, postural treatment, and gentle manipulation to reduce the contents. In this, however, she had been unsuccessful, though (unfortunately for her) she had persisted in manipulating the tumor for several hours. She vomited almost incessantly, pain increased in intensity, and she grew progressively worse.

After explaining the danger of delay, immediate surgical intervention was advised. Her pulse was good, there was but slight elevation of temperature, no shock, and it was believed that an immediate operation would save her life. This was emphatically refused, and I left after administering half a grain of morphine hypodermatically.

The following morning I was informed that during

the night the patient had grown steadily worse and had decided to undergo the proposed operation. She arrived at the infirmary about twelve o'clock and half an hour later the operation was commenced. I had not seen her since the previous evening when the skin covering the tumor was somewhat reddened, but not more than might reasonably be expected from continued hot applications.

When she was placed upon the operating table the integument covering the tumor was found greenish in color—in short distinctly gangrenous. With all possible haste, and exercising the greatest care, an incision was made over the most prominent portion of the tumor, and the sac was opened by continuing the same incision. Two greatly distended coils of intestine immediately came into view, and considerable dark-reddish, foul-smelling fluid escaped. The contents of the hernial sac were markedly gangrenous. The neck of the sac was nicked above and below, but instead of being able to reduce the hernia it was found almost impossible to retain the balance of the intestines within the abdominal cavity. It was quickly decided that nothing could be done except intestinal resection, which was immediately carried out. The Wolfier method was employed, catgut being used as the suture material.* One end of the intestine was found much larger than the other, the upper portion being near the pyloric end of the stomach. After removing all gangrenous intestine and mesentery (the intestine having been reduced and united), the sac was closed as was also the greater portion of the wound including the fascia and muscle, by silkworm gut sutures. The gangrenous hernial sac, the adherent omentum and the gangrenous integument were thoroughly dissected away and the skin closed by silkworm gut sutures (the cavity having been previously packed with gauze). A drainage tube was inserted at the upper angle of the wound and the patient put to bed. By this time her pulse had become almost imperceptible, she having been on the operating table nearly two hours. Strychnine and whiskey had been frequently administered hypodermatically.

During the evening after the operation her pulse was 90, she suffered no pain, and aspiration of the drainage tube brought away only a small amount of sanguineous fluid. She was in fairly good condition the next morning—pulse 108, temperature 99° F.—and remained about the same until evening, when her pulse increased in rapidity and she died at two o'clock the following morning, thirty-six hours after the operation. A post mortem examination was refused.

Notwithstanding the fact that I was unable to see the result of the intestinal anastomosis, I believe there was no fecal extravasation as the aspirated fluid showed entire absence of fecal odor. There was no nausea or vomiting after the operation.

In performing an intestinal anastomosis I do not approve of the use of any of the mechanical contriv-

*The suture used in the case reported is known as the "immaculate catgut" made according to Bissel's formula by J. Ellwood Lee, which has been found absolutely aseptic, and is the only form of catgut I have used which did not give subsequent trouble.—L. F.

*From proceedings of the Louisville Surgical Society.

ances. Direct end-to-end or lateral anastomosis can be done without mechanical devices, and those ingenious contrivances such as Murphy's button, Ramauge's rings, etc., which act by producing gangrene of the intestine, are distinctly inadvisable.

As to the various methods of suturing the divided intestine, the Wolfer is in my opinion to be preferred. It is more rapid, less complicated, and absence of leakage after this method is more certain.

In regard to suture material, I have found in experimental work on dogs that catgut often pulled out. I believe this to be due to two things which should be guarded against: (1) tying the sutures too tightly; (2) placing them too close to the margin of the intestine. If the suture holds for thirty-six hours, success is fairly assured so far as leakage is concerned. Heretofore catgut in my abdominal work has always produced suppuration. After killing one dog upon which I had done an intestinal resection with recovery, pus was found encysted between two folds of mesentery.

One of my experimental cases died of intestinal obstruction after eight weeks, due to non-absorption of that portion of the gut turned in, this remaining as a distinct collar or valve around the entire lumen of the intestine.

In one case in which a Murphy button was used, it was almost impossible to discover the cicatrix, and while I am not in favor of using the button, this specimen presented the nearest approach to normal gut of any I have observed.

REMARKS.

DR. L. S. McMURTRY: The case reported is of interest because (1) of the rarity of strangulated umbilical hernia; and (2) the extent of intestine involved. The result, it matters not what method had been employed in the anastomosis, would have been the same as the operation was accepted too late.

The greatest interest necessarily centers about the choice of method in anastomosis: There is no doubt but the various devices used in making intestinal anastomosis—plates, buttons, etc.—act as foreign bodies and are unsurgical. What we want is a strictly surgical procedure, one which can be carried out in a surgical way. Wolfer's method appeals to us as being the ideal surgical procedure.

The mechanical device introduced by Doctor H. Horace Grant (of Louisville) for making intestinal anastomosis is a time saver, which is essential in the prevention of shock; the Murphy button is also a time saver and its efficiency and practical value have been fully demonstrated. The objection to this device is that a foreign body is left to be disposed of. When we consider operations by the Murphy button and the large number of surgeons who are using this device (many operating without experience or training in abdominal surgery), it is surprising that there have been so many favorable results. It argues strongly in favor of the efficiency of this device. Of course we should strive to devise a method of suture which can be applied quickly and securely; but this desideratum has not yet been accomplished.

The history in the case reported shows that death was not from shock, but it is questionable whether the anastomosis by suture was completely maintained. Although the suturing was done by a trained and skilled hand, I believe it would have been better to use a

Murphy button. By this method we can make an anastomosis quickly, saving much valuable time, and it constitutes, in such ugly cases, the best means at our command.

DR. A. M. VANCE: I saw (with Doctor Frank) the case he has reported, and have never encountered a greater surgical emergency. Of course the question arose at once, What was to be done? It was absolutely impossible, even had it been proper, to return the immense mass of intestines to the abdominal cavity, and it would not do to cover them with towels and allow the patient to die. Wolfer's method was quickly decided upon and carried out. I believe the woman died from sepsis due to the gangrenous abdominal wall, which was very extensive; we took away an area of skin five or six inches in diameter which was markedly gangrenous.

I agree with Doctor McMurry that the ideal way of making an intestinal anastomosis is by needle and thread, and believe many of the best operators in the world have arrived at the same conclusion. I think with increased experience and experimental work as dexterity is gained, the needle and thread will be the chosen method and all mechanical devices will be relegated to the past. Doctor Grant's contrivance is a good thing in certain cases, in gaining time and being an aid to suturing, but it is not the ideal way of bringing the bowel together. If we could get something which would aid in making an end-to-end anastomosis, a device which would facilitate suturing, we would then have accomplished a step in the right direction.

As to the time required to perform an intestinal anastomosis, the dexterity of the operator gained by experimental work will do more in this direction than anything else. In one experimental case, from the time the operation was commenced until the wound was dressed, I did a resection in nine and one-half minutes. The operation could not be done so quickly on the human being, but I believe with the dexterity gained by experimental work the time could be reduced to thirty minutes, which is sufficiently rapid.

I feel confident that the future procedure in making an intestinal anastomosis will be with the needle and thread by the end-to-end method.

DR. H. H. GRANT: I have no remarks to offer concerning the operation performed by Doctor Frank. It seems to have been the best way out of a serious difficulty, and the gentlemen did not expect to accomplish anything more than to get the patient back to bed when they had ascertained the extent of the trouble.

With respect to intestinal anastomosis I would like to say a few words. I have been greatly interested in this operation and have carefully observed its progress for several years. I think the reason the Murphy button has been so extensively used and has accomplished so much good is because the average surgeon is not able to make an intestinal anastomosis by direct suture; he is practically lost in attempting an operation with which he is unfamiliar and in which he has had no experience even if he understands the various steps; he realizes there are several serious difficulties, not only of holding the bowel in correct apposition by the sutures after they are placed but retaining the ends of the gut in proper position while suturing is being done, preventing escape of the intestinal contents, soiling the peritoneum and surrounding parts. There have occurred cases of septic periton-

itis caused by escape of intestinal contents into the cavity during or following the operation, or soiling by the fingers of assistants—it is difficult, at times quite impossible, for experienced men to avoid this in the method of direct suture. It is difficult to accomplish this result, and experimental cases have died of septic peritonitis probably because some of the intestinal contents defiled the peritoneum.

Concerning employment of the clamp, it is of great advantage from the fact that the two peritoneal surfaces are accurately approximated, the intestinal tract is practically closed, and because the cut ends are held more or less perpendicularly there is less likelihood of escape of the fecal contents; the bowel is compressed beyond where the clamp enters, and the clamp itself prevents escape of what few shreds might still remain in the intestine; the intestine is held firmly with surfaces for suture accurately opposed and can be readily sutured in this situation by any ordinary skilled operator. None of the difficulties occur—fixing the bowel with the fingers, suturing in a comparatively close place, etc.—and there is no manipulation of the intestines where the clamp is employed. While the time saved by the clamp method is not quite equal to that saved by the Murphy button, the operation is equally easy and there is no foreign body left to interfere with subsequent recovery of the patient.

Before present methods (mechanical aids) were used direct suture was almost a hopeless step. The mortality was enormous (from 50 per cent. to 60 per cent.) in the hands of the best operators, where direct suture was employed. The reason mechanical devices (buttons, plates, etc.) were suggested was because the mortality was so high that it was almost out of the question to undertake a resection except with previously carefully prepared surroundings and with much experience and skill. These devices, however, enable the ordinary surgeon having the average experience and skill to perform intestinal operations and save a great many lives. For this reason such devices are popular, but they are all practically unsatisfactory. They make a troublesome bulk and the anastomotic opening is too small, being rarely over one or one-and-a-fourth inches, hence it soon contracts and closes. The advantages of the clamp over other methods is that it makes direct suture perfectly simple; it cuts an opening in the intestine three and a half to four inches in length, and the intestine is held in correct apposition by the blades until suturing has been completed; leakage of intestinal contents is quite impossible and suturing is made perfectly easy by any of the ordinary methods. For these reasons I believe lateral anastomosis by some such plan as indicated by the clamp, will eventually be the method that will be generally employed, and that direct suture without this aid will never be popular with the general surgical profession because it can never be safely and quickly performed by any except the most experienced and skilled operators.

DR. WM. L. RODMAN: My views on this subject are similar to those expressed by Doctor Grant. While direct suture is undoubtedly the ideal method, still with the experience we have at present the different devices have proven the life saving method. More lives will be saved by using the Murphy button and Doctor Grant's device than by direct suture. I would prefer either the Murphy button or the device intro-

duced by Doctor Grant than to attempt direct suture.

Statistics of the older operators were very discouraging as to direct suture after intestinal resection. Riechel, who reviewed a great number of these cases several years ago, showed that considerably more than 50 per cent. died. Certainly much better results are claimed now than before the day of mechanical devices, the Murphy button particularly. I am also favorably impressed with the excellence of Doctor Grant's clamp.

DR. J. B. BULLITT: I was an onlooker when Doctor Frank operated upon the case which furnished the basis for his paper. When the incision was made an immense amount of gangrenous intestine presented; it was one of the most formidable cases of emergency surgery that I have ever witnessed. Resection and immediate suture was the only procedure to be thought of under the circumstances. I believe, however, Doctor Frank is mistaken in stating that he resected the intestine to a point near the pyloric end of the stomach. When we consider the anatomical relation of that portion of the intestine removed to the pyloric end of the stomach, it will be seen that starting below the transverse colon and going upward toward the stomach we could not follow the duodenum without going underneath the mesentery of the colon. I think the gut was resected only up to that point where the duodenum dips under the mesentery of the transverse colon.

I would like to say a few words in regard to intestinal anastomosis, not based upon experience on the human being, but upon dogs. Last summer Doctor B. C. Frazier and myself, associated with Doctor A. M. Vance, undertook some experiments upon dogs, and we learned something about intestinal suture from that experimentation. As Doctor Vance has stated he made an intestinal resection on one dog in nine minutes and fifty-three seconds, which represents the time from "first blood" until the dog was lying on the grass with the wound dressed. This dog recovered and lived to be again operated upon. In most of the operations where catgut was used as suture material the dogs did extremely well, no sepsis supervening; in two operations where silk was used both dogs died. It was afterward discovered that it was not through failure of the sutures to hold but because of imperfect work. In one or two other operations with silk the dogs recovered.

Where the surgeon is called in an emergency case to do an intestinal anastomosis, especially upon adults in country practice, operation by the Murphy button is much safer and more certain than making an end-to-end anastomosis by direct suture. In my own experience in two experimental cases in which the Murphy button was used both dogs recovered.

In those experimental cases which died I think it was not due to escape of intestinal contents into the cavity during the operation, but on account of failure of the suture. The peritoneum of the dog is very resistant and will tolerate a certain amount of the bowel contents without evidence of infection. Moreover, I cannot understand how Doctor Grant's clamp renders the possibility of infection less than by the method of end-to-end anastomosis by direct suture, and I can see nothing in it which will control escape of the intestinal contents, it does not block up the end

of the intestine, the two ends are open with a blade of the clamp in each, but this is not sufficient to prevent leakage. I agree, however, that use of the clamp renders suture more easy, more simple, and more certain than by employment of the Wolfier method.

DR. W. C. DUGAN: On investigating the history of umbilical hernia recently I found the operation was common in the days of Celsus. In reading the reported cases of Celsus and Dessault (who did a great many of these operations) I was surprised to find few accounts of death. The next operator in this line was Petit, who employed the method that has been adopted by McBurney of the present day—that is, he dressed the wound open in order to secure a large scar.

From Petit's time the operation seems to have been discarded until about 1866 when it was performed in this country by Storer (of Boston), and from that time on the operation has grown in favor. Some time ago Sanger reported twenty-seven cases of umbilical hernia with only one death.

Doctor Frank made one statement that is not borne out by other writers, i. e., that the intestine becomes gangrenous early. Many authorities take the opposite view, stating that gangrene is one of the later symptoms, and that these cases are not so urgent as the femoral or inguinal variety.

The case reported by Doctor Frank was an extreme one and the result was anticipated. The operation performed at the proper time should be but little more dangerous than an exploratory laparotomy and the result as to cure equally as good as that for ventral hernia.

The cases of Celsus, Dessault, Petit and other older operators were treated by ligature, sometimes with and sometimes without opening the sac. Pott and Cooper were much opposed to the operation, and they were considered such safe medical men that their teaching did much to condemn what was on the continent a popular procedure, and their influence being handed down the operation rested with the memory of these older surgeons until the time when people were disposed to consider all matters from a reasonable standpoint and not accept the opinion of any man as final.

DR. LOUIS FRANK: My object in presenting this subject was threefold: (1) to report an interesting case; (2) to bring out a discussion upon intestinal anastomosis; (3) to get the different opinions as to catgut as suture material.

The first two points have been very well covered, and Doctor McMurtry has spoken of the third. When I first used catgut I was opposed to it, and bad results followed in every instance where it was used. I have found since that the unfavorable results were due to an imperfect method of suturing, and not wholly to the catgut. Up to that time I had never found any catgut which could be relied upon. I had prepared it myself, and had used that prepared by the various methods, always with the same result—suppuration! If perfectly aseptic catgut can be secured, and I now believe from personal experience (though I did not formerly believe it) that it can be made aseptic (that which I have shown you certainly is), it is the best suture material we have for intestinal work. Care should always be taken in placing the sutures to go wide of the margin of the intestine, otherwise they will not hold. Catgut is absorbed, which is not true

of silk. In experimental cases where I used silk (six cases) though few died, there were found upon examination a great number of adhesions, not only omental adhesions along line of the incision, but also of the intestine and around line of the mesenteric suture.

In looking up the literature of the subject I found the mortality was reported as rather high. One authority (Konig) stated in reviewing a number of reported cases that the mortality was shown to be 46.7-10 per cent., although he believed it was much larger. This included strangulated and other cases operated upon. Cases operated upon in early childhood also showed large mortality. These statistics extend back a number of years, possibly to pre-antiseptic days.

The consensus of opinion is that the intestine in these cases becomes gangrenous rapidly, and on this account all authorities advise that only limited attempt at reduction be made, as handling the gut will increase congestion and render strangulation more marked.

One reason why the intestine in the case reported became gangrenous so rapidly (and Doctor Vance called my attention to the fact at the time, and which holds good in all these herniae) was the thickness of the ring; it was very thick and dense, not of the character usually found in other varieties of hernia.

As to mechanical devices versus direct suture in intestinal anastomosis, I agree with the gentlemen who have spoken that direct suture is undoubtedly the ideal procedure. I do not underestimate the value of mechanical devices, but they are of use only where surgery must be done by inexperienced operators. Anyone who has had experience in surgery, especially one who has done abdominal work, can use the direct suture and apply it rapidly with just as good results as can be procured by any of the mechanical devices, and I do not believe Doctor Grant's criticism will hold good.

I agree with Doctor Bullitt that the trouble is that the suturing is imperfectly done, and this may be true with the aid of Doctor Grant's clamp just as readily as without any device. There is no reason why there should not be just as much soiling of the peritoneum when using Doctor Grant's clamp, where the ends of the intestine are left open for a short time, as would obtain in an end-to-end anastomosis by direct suture. If the sutures are placed close together, and sufficient care exercised in going wide of the margin of the bowel, there is no reason why there should be any leakage.

The Murphy button is of undoubted value in a certain class of cases. As far as time is concerned, I do not believe this can be adduced as an argument in favor of the button operation as it requires about as much time as any of the other procedures.

Premature detachment of the placenta is suggested by aberrant pain unexplained by even slight bleeding during pregnancy, states W. R. Nicholson (*N. Y. Med. Jour.*, April 13, '07). Such cases should be most carefully watched, and as soon as the provisional diagnosis is fairly certain an amount of cervical dilatation sufficient for immediate delivery should be induced. In the rare cases where rigid unobliterated cervix complicates the bleeding a vaginal or an abdominal Cæsarian section should be done.

PARTIAL STENOSIS OF THE NARES AND ITS SURGICAL RELIEF.

BY CHARLES C. MILLER, M.D., CHICAGO.

DR. ROE, of Rochester, New York, some years ago described a condition we sometimes meet in which a contracture of the nasal orifice exists. I have not the reference at hand, but in this article Dr. Roe illustrated a flap operation which enabled him to overcome the stenosis and to secure a prompt healing subsequent to the operation.

The formation of a flap, as described by Dr. Roe, has not particularly appealed to me, and I prefer to make an incision directly in the median line. This incision is carried backward where the stenosis is at the base of the nose, and forward

Should the parts be deficient and the simple operation for occlusion be unlikely to secure a condition entirely normal owing to contraction of the tissues the alæ may be sectioned at several points and a plug

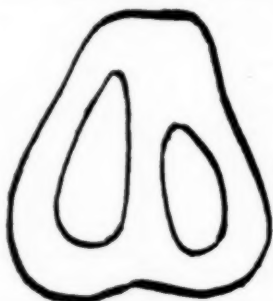


FIG. 1.

Illustrating partial stenosis where the obstruction is at the base of the nose.

when the stenosis is toward the nasal tip, and after the parts have been completely divided with the index finger and the thumb, the tissues are everted and trimmed away with scissors so that the skin alone is left. When this excision of tissue has been completed on both sides of the incision along the median line of the obstruction, two skin flaps are left and these may be turned upward into the nose and sutured with fine silk. Small curved needles serve best for suturing and these delicate flaps should be drawn upward into the nose.

By practising the technic I have described no vis-

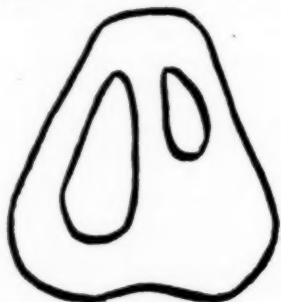


FIG. 2.

Illustrating a partial stenosis involving the nasal tip.

ible scar is to be seen after the operation unless sloughing of a flap occurs and this method of flap formation insures to the flap the best possible blood supply.

Complete stenosis of the nostril should be treated in a similar manner unless such a distortion exists of the parts as to render such restoration impossible.

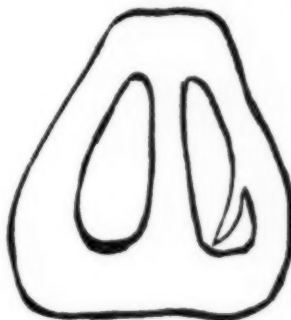


FIG. 3.

Illustrating the manner of flap formation recommended by Dr. Roe.

inserted in the nostril to minimize contraction while healing is taking place.

Sectioning may be subcutaneous, and should be performed before the skin flap is sutured in place within the nose.

Distortion of the septum may throw the nasal tip to one or the other side of the median line, and should such a condition exist, the septum should be freely sectioned and sutures passed to hold the tip in a corrected position.

Should the tip of the nose be upturned unduly it may be separated from the septum and freely undermined so that it may be drawn down and sutured in a normal position, and should the reverse be true and the

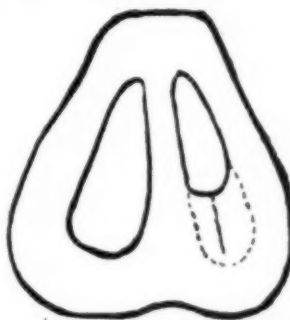


FIG. 4.

Straight line marks the location, direction and extent of the first incision. Dotted line indicates the extent of the subcutaneous dissection. The skin which is preserved is turned upward into the nasal vestibule and held in place by fine silk sutures until healing occurs. No visible scarring is left after this operation.

nose appear too long the excess of tissues should be excised from the septum and the tip, and the tip should then be fixed by sutures at the conclusion of the operation so that symmetrical healing will be assured.

Featural surgery is a subject which the ethical members of the profession cannot afford to disregard indefinitely, for by the continued discussions in the public press of the means of improving the personal appearance a demand has been created for surgeons capable of operating and correcting defects of the features. The advertisers are at the present day reap-

ing harvests in the larger cities, and it is to be hoped that the members of the regular profession will awaken to the necessity of serious consideration of this subject. Scoffing will not satisfy the man or woman who has consulted a physician regarding a featural defect. Such individuals expect to be treated seriously and the family physician who refuses to do so merely weakens his position with such people. In time the advertiser will secure the individual who cannot find an ethical surgeon to operate, and as the advertisers are indifferent as to results as well as incompetent, their work is likely, to say the least, to prove unsatisfactory.

70 State Street.

The varieties of coma are well differentiated by G. R. Butler (*The Diagnostics of Internal Medicine*), who considers opium, alcoholic, apoplectic, uremic, epileptic, hysterical, syncopal, diabetic, comas, and coma from gas poisoning and from sunstroke. When being called upon for diagnosis one should first inspect the *skin*; then the *head* (especially for evidences of traumatism); then the *face*, seeking for unilateral paralysis. The condition of the *eyes* presents signs of value. If both pupils are contracted and do not dilate when covered, we suspect opium. A cerebral lesion is indicated by unequal pupils. Hysteria is likely when upon attempting to raise the eyelids there is a quivering resistance, the eyeballs being kept continually turned upward. The condition of the *mouth and tongue* may indicate epilepsy. The *extremities* must be examined for paralysis. Butler reminds us that some comatose conditions may be preceded or followed by general convulsions, such as: the primary convulsion and subsequent extreme drowsiness caused by the *exanthemata* and other acute specific infections in children; the coma which follows convulsions due to dentition or digestive disorders in children; the coma following the epileptiform seizures of cerebral syphilis, general paralysis of the insane and more rarely of alcoholism; the coma consequent upon the convulsions of epilepsy and hysteria. A general convulsion may precede the coma of sunstroke, cerebral hemorrhage and some other ailments of less frequency and importance. The diagnostic significance of coma is important. Occurring very suddenly it suggests apoplexy, catalepsy or sunstroke. Gradually appearing and more or less complete it may attend any of the fevers and acute infections. It is symptomatic of narcotic poisoning, as from alcohol, chloral, opium, ether, chloroform, nitrous-oxide gas and coal gas. It may be caused by uraemia and late diabetes; or other poisoned states of the blood, such as septicaemia, pyaemia, carcinomatous growths, or perhaps acute yellow atrophy of the liver. Asphyxia is attended with drowsiness or perhaps actual coma. Injuries to the head involving concussion, laceration or brain pressure (as from a depressed fracture) may produce total unconsciousness, or coma may be due to organic, hemorrhage or inflammatory encephalic disease; in meningitis it would occur late and be due to the pressure of the exudate. It may be associated with disease of the cranial bones or cerebral tumor or abscess, acute encephalitis, cerebral syphilis, embolism or thrombosis, with consequent softening, general paresis and multiple sclerosis. Severe muscular exertion may induce a coma; its appearance

often presages death within a few hours, or several days from many acute and chronic diseases.

Nitrate of silver is the best remedy for disinfecting the urethra and bladder and lessening suppuration (*Int. Jour. Surg.*). Its action on mucous membranes is astringent, contracting the blood vessels and forming a protective layer of coagulated albumen; and antiseptic, coagulating the proteids of the micro-organisms, the metal itself having also specific effects. As a preventive of acute gonorrhoeal urethritis a solution of silver nitrate is, next to a protective, the best prophylactic. A drachm of a 1-30 solution has been injected and left for some little time in contact with the urethral walls; but this is so intensely painful that the nitrate has been largely replaced by the newer silver remedies. After the inflammatory symptoms of acute gonorrhoea have abated under the use of boracic acid (3ii to iv.-Oj), or normal salt solution we may use nitrate of silver. We should keep in an amber bottle a stock ten-grain-to-the-ounce solution. We begin to irrigate with 1 to 10,000 strength (gr. 3-4 to Oj; approximately a drachm of the stock solution to the pint). This we cautiously increase, irrigating daily or every other day, according to the sensitiveness of the patient. Silver nitrate is useful also in chronic urethritis, prostatitis, spermocystitis (after massage) and the general cystitis of enlarged prostate, stone and tumor. Here the strength should vary from 1-5,000 to 1-500. The treatment is effective so long as the urine is rendered clearer and symptoms are diminishing. Any evidence of irritation is a signal that the dose is too strong or too frequently repeated; it is best then to change to another remedy, or to desist for a time from local treatment.

The Genesis of Genius.—Dr. Louise G. Rabinovitch, states the *Medical Record*, has found that comparatively few geniuses have been the first born of their parents. Among seventy-four great poets, writers, politicians, painters and musicians, both men and women, the doctor found that but ten were first-born. Among forty-two writers and poets, but six were the eldest born; among seventeen painters but one was first-born; and only two among fifteen musicians. Not only were these men of genius among Dr. Rabinovitch's cases not the first-born, but in a very large number of cases they were the youngest or next to the youngest in the family. Thus was Coleridge the last of thirteen children; Cooper the eleventh of twelve; Washington Irving the last of eleven; Balzac the last of three; George Eliot the last of four; Napoleon the eighth and probably the last of his family; Daniel Webster the last of seven; Franklin the last of seventeen and the last born of the last born of several generations; Rembrandt the last of six; Rubens of seven; Landseer was the fifth of seven; Von Weber the ninth; Wagner the last of seven, as also Mozart; Schumann the last of five and Schubert the thirteenth of fourteen. Dr. Rabinovitch believes that the parents of great men have been for the most part of a ripe age at the time of the conception of the latter; that the cellular potentiality of the parents was then at its maximum mentally as well as physically. Those pessimists on the other hand, who believe that genius is a product of degeneracy would hold from these statistics that these geniuses were conceived at a time of physiological poverty on the part of the parents.

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A NEW SCHEME.

IN the sharp competition of modern business, various inducements are offered to secure patronage. Certain manufacturers of drugs frankly appeal to the laity and practically ignore the medical profession, although, only recently, one of the sarsaparilla firms published in the daily press a large card, calling on prospective customers to ask their physicians if this particular nostrum was not a valuable remedy. As this drug is an out-and-out patent medicine and as physicians are almost unanimous in regarding sarsaparilla—in however ethical a form—as of very slight therapeutic value, any such advertisement is obviously a bluff.

Other drug manufacturers seem impressed with the idea that "keeping everlastingly at it" is the key to success. Their preparations are mediocre, sometimes of trivial value, sometimes practically identical with ordinary officinal remedies that any competent druggist can prepare, their methods of advertising are trite but apparently every ton of blotting paper or of mimeographed letters, brings in a definite amount of business.

Many firms rely mainly upon the excellence of their preparations. While not ignoring the advantages of judicious advertising and while occasionally making mistakes in their claims or, in some instances, relying on their general reputation to make false claims for certain preparations, it is true that most of the leading drug houses deal honorably with the profession and seek patronage by establishing the merit of their products.

On general principles, the prospective purchaser or recommender of a commodity should be a judge, and, like a judge, he should be free from any interested motive, sense of personal obligation, or personal favor. Thus, beyond the reasonable use of samples necessary to the formation of an unbiased opinion, any form

of present by manufacturers to the medical profession or the ownership by members of the medical profession of stock in manufacturing concerns, tends to create a bias which may warp the most conservative judgment.

One of the large manufacturing companies has recently made a proposition to physicians which acknowledges in the plainest terms and recompenses in the most liberal manner, the partiality of an interested judge in making a decision. This company manufactures a line of drugs of no conspicuous merit and yet, on the whole, such as are serviceable and comparatively harmless, covering a wide range, from routine tonic prescriptions and the like, to toilet articles. This company had previously offered its stock to physicians so as to make the latter copartners, and it has also combined the ownership of stock with what is practically an endowment life insurance policy. Its latest offer is still more liberal and is significant as showing the actual cash value to such a concern of physicians' patronage. In brief, the physician contracts to receive a six or ten year endowment bond, paying a small initial fee and a monthly sum, varying in amount according to the terms of the contract but amounting to about ten dollars. Immediately on receipt of each monthly payment, the company returns to him an order good for the same amount of its own goods, at a discount of ten per cent. from regular prices. The physician can use this order himself or transfer it to any one else. He is expected to arrange with some druggist for its use, receiving the face value, on which the druggist makes the profit of ten per cent. The physician is not in any way required personally to buy or even prescribe the goods of this firm, but obviously each physician must, on the average, directly and indirectly, cause the consumption of at least this amount of the firm's products, or he cannot cash his order checks. In other words, allowing for interest, the firm pays the physician one thousand dollars for six years' work as agent for its goods, and unless he succeeds in selling at least \$720 worth of goods in that time, or unless some other physician makes good his deficit, he has to make up the deficiency in cash.

Looked at in a cold-blooded, business way, any such contract involves something of the speculative element. Aside from the supposition that the firm remains solvent, the investor must take it for granted that not only himself but the other investors will do their part as agents and that druggists will continue to cash the checks or else the individual investor must stand ready to sell to his patients ten dollars' worth of this firm's goods every month. So far as we can estimate, any physician with a fairly good practice could dispense or prescribe this amount of the goods, providing that he kept his contract carefully in mind and did not ob-

jeet to administering remedies that would have no particular bearing on his cases. On the other hand, if the physician, although personally interested in the sale of these goods, were conscientious in prescribing, we should imagine that it would require a very large or a very peculiar kind of practice to insure this amount of consumption. If, in addition, the physician also considered the merits and rights of competing manufacturers or entertained old-fashioned views as to extemporaneous prescribing and the use of officinal preparations, we do not see how he could dispose of the ten dollars' worth monthly. The firm makes no secret of its dependence on refilled prescriptions and direct lay use of its preparations. Without commenting on the ethical consideration here involved, it is worth while to consider that the physician might find later that, through some direct offer of the firm to retail druggists, his checks good for drugs at a ten per cent. discount, might not be worth their face value to his local druggist.

Viewing the matter either as a business proposition or as a matter of ethics, we should advise any physician approached with such an offer to decline it. It would be better business and better ethics to seek out a local, retail druggist and arrange for commissions on all business sent to him. By this means, the physician can prescribe a larger range of drugs, he will not be so likely to be found out and, in many instances he can tell the patient that the prescription is expensive and can then telephone the druggist before the patient reaches the store, so as to have an extra price added to the regular charge. Moreover, while a wholesale company may find means of freezing out the doctor who depends on cashing his checks at drug stores, the doctor can withdraw his patronage from any retail druggist who refuses to pay commissions and can tell his patients that that druggist is incompetent. Even if all the available druggists should have foolish notions about paying commissions to physicians, and should kick the doctor out of their pharmacies, he can buy his own stock of drugs—and on the whole cheaper than he can buy the ready prepared from this or any other firm—and can sell them to his patients for "all the traffic will bear."

THE INIQUITOUS SPECIALIST.

CLEARLY the medical specialist is in a bad way these days. But recently we have learned of his ineradicable propensity to require a thousand dollars, or certainly not less than five hundred, to be placed in his palm before he will consent to put the knife to the cancer, the anæsthetic to the nostrils. His money, like that of wicked millionaires,

has openly been declared to be tainted. Those virtuous Christian Scientists, who have never been known to exact a fee, are joining in the denunciations which consume much space and respiratory exertion in the press, the pulpit and in the courts. Why, only the other day a St. Louis judge decided that a rich man is to pay no more than a poor man for a doctor's services. The specialist is being held up in his true light in the contemporary novel, as witness Mrs. Wharton's "Fruit of the Tree," where not only one but two medical rascals are presented; and in Mr. Maarten's book, "The New Religion," we see shown up a vast conspiracy between the ordinary practitioner (poor man, we had thought he has become too scarce and too innocuous to harm anybody), the specialist, the druggist and the managers of hospitals and sanatoria.

But seriously some lay impressions of medical chicanery and of overcharging are not absolutely without foundation; to deny this would be equivalent to claiming moral perfection in our profession, a thing which is non-existent anywhere in the cosmos. And we must agree with the *Evening Post* that physicians "who would conspire to keep a rich and confiding patient in terrified suspense while they invented fresh treatments or tortures would be guilty of a cruelty and treachery compared with which the barbarities of Red Indians are merciful." Yet when the laity speak of our black sheep we are entitled to ask if any calling—commerce or the law, or the pulpit, for that matter, is free of such. Certain it is that physicians of this stamp are not to be found in reputable medical councils; high-minded practitioners do not consult them; humane medical men, who are, of course, vastly in the majority, despise them and their works; and exult when righteous judgments penalize them for their iniquities.

And if we may for once drop the professional aspect of the matter and look at it—as most people do—in a business light, we might well ask the layman, if he finds Dr. A.'s charges for an operation too high, why he does not then engage Dr. B. or another to do the work? The matter in the end reduces itself to one of supply and demand. Is A.'s name world-famous? Then let his fame be paid for. But we medical men know full well that any operation A. can do can be done equally well by fifty others, whose charges would cheerfully be adjusted to the poorest means; nay, among these fifty there would very likely indeed be those who could do the work better than A., and who are unfortunate not in that they lack qualification, but in that their names do not happen to appear in the pages of *Who's Who*. We reprehend those among the laity who bandy about the names of notable physicians, as they do those of bril-

liant operatic performers.

We have quoted the *Evening Post* by way of animadversion; it is due both to this most forceful lay paper and to our profession to quote from the same column sentiments of praise: The developments in medical science are due to the incessant labors of the specialist. "The resulting benefits to mankind, as in the case of the diphtheria antitoxin, cannot be reckoned in money. An inventor who should expend half the time and skill on a contrivance of infinitely less intrinsic worth might easily win a fortune. But the medical specialist reaps no reward whatever beyond, perhaps, a slightly increased practice due to his added prestige. Often, indeed, he deliberately sacrifices his practice to the advancement of science. For every new discovery in medicine and surgery, every new specific, every new process or device is at once offered freely to the whole world. The doctor who makes a secret of his drugs or operations is instantly ostracized. Generalizations are dangerous, but it is safe to say that no one class of men has given mankind so much and received so little material reward as the medical specialist. His greatest recompense is the consciousness that he is the servant of the deal."

THE RAT AND DISEASE.

IT is a defective and an unclean civilization which endures the rat. Such was the case along the Mississippi years ago, when Mark Twain so vividly pictured the experiences of Huckleberry Finn; when in almost any house, almost anywhere along the floor would protrude the nose of one of these dirty brown rodents. Such seems to be the case to-day in Copenhagen, where the conditions are so bad that a society has been formed for the extermination of that creature, which harbors in its mangy hide so many varieties of disease-engendering parasites. Besides engendering disease the rat destroys property, causes fires and inundations by gnawing through water-pipes. Wherever living and housing conditions are unsanitary, where filth and refuse remain unremoved, where drainage is bad, where dank and darkness prevail, in regions unreachable by sunshine and fresh air—under conditions, in short, where scavenging is necessary—there is the rat to be found, there, indeed, in the scheme of things, is the rat indispensable.

Our Department of Agriculture at Washington has provided, in the *Farmers' Bulletin* 297, a number of important observations of which we here note those relating to disease propagation. The rat seems to be almost entirely responsible for the propagation of bubonic plague from port to port; the germ of typhus and typhoid fevers, and no doubt also of tuberculosis, and of many other infections are disseminated by it.

Investigations in Chicago have shown that the rat is in very loathsome ways related to trichinosis in man. Rats and mice are very susceptible to hydrophobic infection; they may, therefore, be responsible for many cases of canine rabies. If the methods suggested for destroying this animal if carried out would "be worth more to the people of the United States in a single decade than the Department of Agriculture has cost since its establishment." Poisoning, traps, ferrets, and fumigation are the means to be employed. Barium carbonate and strychnine are the most useful poisons. The "guillotine" or "break-back" trap, made entirely of metal, is probably the best. Ferrets and dogs are useful, but only when their masters are experienced in rat catching. In fumigation a wad of cotton saturated with carbon disulphide is pushed into the burrow and the opening closed with soil to prevent the escape of gas; this method cannot be used in dwellings, where the decaying body of the rat would create a stench.

But to end as we began, the question is one of cleanly civilization. If communities have not risen above the level where they will permit filth and putrescence to accumulate they—lest worse befall them—must endure the rat, which is a natural scavenger of such matter. The *Journal of the American Medical Association* well observes that rats, unless they would starve, must necessarily desert habitations which are properly constructed, well drained and clean from the foundations up. "In cities the careful screening of the entrance to sewers and the stopping of all holes in the floors and walls of houses should form a part of the sanitary crusade and would go far toward making it impossible for the pest of rats and mice to continue. The most effective means of exterminating them lies in strict obedience to those laws of sanitation and prophylaxis which modern science has succinctly formulated."

THE IMMUNIZATOR.

SINCE the great efficacy of the diphtheria antitoxin as a life-saver has been demonstrated, it has become evident that the production of artificial immunity against any given infection is one of the most essential resources of modern therapeutics. Undoubtedly curative bacillus emulsions, coccic sera and the like will soon be evolved for many infectious diseases. It has, however, become equally evident that the technique and the procedures which must be gone through are oftentimes so involved and delicate that the practitioner engaged in active general work is hardly competent to undertake them. For instance the determination of the opsonic index in a given case requires oftentimes several hours of most skillful

manipulations; as Wright, who originated the opsonic theory and the practice of therapeutic bacterial inoculation has observed: "You are infected with a particular microbe and my business is to find out the microbe, make a vaccine from it, and inoculate you and bring up the resisting power of your blood. For such skilled service you will require a man who has spent years of study to master the technique, to know how to make the vaccines, to know where to look for the microbes, to know which are the most important microbes, to know how to isolate them, and, most of all, a man with sufficient experience and ability to apply all these things."

These observations seem reasonable; and undoubtedly until minimizing methods have become simplified they must be employed by men especially skilled in their preparation and use. Here is place for a new department of medicine and for a new specialist whom *American Medicine* has well termed "the Immunizator." At the present time there is really great danger in the unskillful administration of the powerful substances which are now being evolved. The risks underlying the use of vaccines with their bacteria un-killed, "perhaps contaminated with other and more dangerous species, or as happened in the old days of humanized variolous inoculation, containing the virus of syphilis," should not be taken by the inexpert.

HEALING CHEMISTRY.

IT was thus that Dr. Chanler, in his recent popular lecture at Columbia University, spoke of the transition from alchemy to the application of chemistry to the healing art, which occurred about the time of the Reformation. The science had already done much for medicine; but strange to say it was Paracelsus, whom we are rather fond of denominating a quack, who was the first to express the belief that the only hope for the art of healing lay in chemical means for combating disease.

A biography of this Paracelsus should bear reading by the practitioner of to-day; it would seem that for his day and generation he was a man peculiarly enlightened and wise in many things. "He taught," states Prof. Chanler, "that the true object of chemistry was not to make gold but to make medicines. He regarded the human body as a co-ordination of chemical materials and processes and believed that when anything went wrong chemical medicines alone would set things right. He occupied the chair of Medical Science at Basle and was celebrated for his wonderful cures." If this be quackery, then let us by all means have any amount of it.

We are here reminded of those who wanted Lin-

coln to dismiss Grant on the allegation that he was overfond of whisky. "I wish," said Lincoln, "that you could find out for me the brand of whisky upon which Grant is winning his victories, and I will gladly send a cask of it to each of my other generals."

Is there anything more modern than these statements concerning Paracelsus? Are we not now all believing quite as he taught; is there anything in which we differ from him except in the words we used to express precisely his ideas?

We say now that living is the body's response to environmental stimuli, either physical or chemical in character; that normal living is the right adjustment of internal relations to external relations. Our disordered metabolism is but a perverted chemism; our unhealthy organs are but chemical laboratories in bad working order; our infections come about through the evolution of germ toxins, the process being largely a chemical one, and for a cure we manufacture and administer such chemical products as sera, antitoxins and the like. It would seem, after all, that the ideas of one age are very like those of another, the difference being largely in nomenclature.

Paracelsus employed copper vitriol, corrosive sublimate, sugar of lead, various antimony compounds, diluted sulphuric acid, sulphuric acid sweetened with spirit of wine, tinctures of iron, various essences and extracts and laudanum; and after him other great Iatro—or healing chemists, such as Libanius, Von Helmont and Glauber evolved many substances which we cannot spare from our pharmacopœia to-day.

THE EXANTHEMATA.

AS ordinarily employed, this term includes variola, scarlet fever, measles, varicella, rōtheln.

It might etymologically be used to include erysipelas and various forms of dermatitis, especially those of bacterial origin. Dukes and his adherents have made an effort to include a "fourth" disease, the numeral implying, as we understand it, a superficial resemblance among measles, German measles, scarlet fever and the suppositious disease. After the natural enthusiasm for something new had subsided, more critical consideration of the evidence resulted in a general verdict against the existence of this fourth disease as a separate entity.

Aside from variola, the four diseases commonly termed exanthemata, are par excellence, children's diseases. It is often forgotten that, except for the influence of vaccination and barring possible minor differences in statistics, small pox is equally a children's disease. This statement may be qualified with the paradox that childhood has no marked predisposition to any of these diseases. Uninfluenced by

such prophylactic measures as vaccination and an ideal system of quarantine, all of these diseases are so prevalent and there is so little immunity against them that nearly every one exposed contracts the disease. Such factors as general health and hygienic mode of life, have practically no influence on susceptibility. On the other hand, with occasional individual exceptions (and the apparent exceptions are probably magnified in numbers by errors in diagnosis and confusion of the different exanthemata in histories given by parents or imperfectly remembered by family doctors) one attack confers immunity against other attacks, even in the presence of conditions of virulent exposure and depraved general health. It is obvious that, in any ordinary community such circumstances would necessarily result in a maximum incidence in childhood. That very early childhood is usually spared, is probably due to two factors: protection from ordinary disseminated infection and specific immunity derived from milk and, possibly, from direct heredity. It may be remarked in passing that when these infections occur during pregnancy, the pregnancy is very likely to be interrupted and, at least in the case of small-pox, the disease seems actually to affect the foetus. The rare coincidence of an attack affecting the pregnant female, with subsequent delivery of a viable foetus, not itself diseased, and subject to careful subsequent observation, renders it impossible to say whether a maternal attack confers immunity on the foetus. That there is no general hereditary immunity is obvious, from the very persistence of such diseases.

On the other hand, that age itself has no bearing on the susceptibility to such diseases, is abundantly proved from experience, most positively and most dramatically accumulated among the American Indians, when tribes not previously exposed to these diseases have been decimated by them.

Under the influence of vaccination, opportunities for acquiring small pox have become exceedingly rare. As public vaccination is enforced mainly during childhood and as young babies are seldom exposed to centers of infection, it is perfectly explicable that small pox, originally mainly a children's disease, now affects mainly adults who have neglected to be vaccinated, or, at least, have allowed the protection thus secured to lapse so that small pox may occur in the mitigated form of varioloid. It should be clearly understood that this postponement of the age of maximum incidence of an infection applies generally to all diseases under prophylactic control, being more marked as the prophylactic measure is more efficient and as the infection is more easily conveyed by ordinary exposure. Thus the phenomenon would scarcely be expected in a venereal disease and, while it has been noted to some degree in typhoid, it would be even more con-

spicuous in the exanthemata if all were subject to prophylaxis analogous to that of vaccination. It would, of course, not be so evident in diseases like diphtheria, which are not semelincident, although, even in such, unless there were special reasons protecting children or predisposing adults, the same tendency to delay in incidence would attend any conspicuously successful method of prophylaxis.

A rather important corollary to any statement regarding the "children's diseases" is the common belief that their virulence is greater in adults. Without being able to bring statistic evidence to support the contention, we still venture the opinion that no such difference exists, at least in any essential sense. It must be remembered that, in spite of the less endurance of children, they are, on the average, more apt to be organically sound than adults, simply on account of the fact that less opportunity has been presented for the accumulation of factors detrimental to kidneys, circulatory apparatus, liver, etc. Then, too, their very lack of resistance tends to place them under medical care, in bed, early in the course of the disease, whereas adults too often attempt to fight off a sickness on account of urgency of duties. In the instances in which the exanthemata have attacked savage tribes, the exposure to cold, partly on account of lack of suitable houses, partly of voluntary exposure to relieve the intolerable itching, and the general demoralization and lack of medical care and nursing, have resulted in high mortality. Then, too, it must be considered that the sickness and death of an adult produces a more profound impression than that of a child. Even if it be true that on the average, the exanthemata occur in aggravated degree in adults, every practitioner can recall adult cases of exceptional mildness.

It is interesting to note the relative importance of these diseases as indicated by mortality. According to the census of 1900, there were, in each 1,000 deaths:

- 40 from unknown causes;
- 62 from violence, accident, suicide, etc.;
- 43 from premature birth, atrophy, inanition, etc.;
- 243 from cancer and senile or degenerative diseases;
- 20 from various inevitable causes;
- 408 from causes not connected with prophylactic medicine.

A large number of deaths are ascribed to inflammations, not definitely due to bacteria or other germs. Just how to enumerate and classify enteritis, bronchitis, etc., is a difficult problem. More than another hundred of every thousand deaths are due to tuberculosis, whose prophylaxis is along rather different lines. Thus, the fact that only about 23 deaths in a

thousand are due to the exanthemata, fails to show their relative importance. Certainly, if we exclude typhoid, which causes about 35 deaths in a thousand and whose prophylaxis is pretty definitely limited to the exclusion of one man's excreta from the mouth of another, we may say safely that the exanthemata account for a tenth of the preventable mortality and, that, in the aggregate, they are as important as any other specific infection, such as diphtheria, whose mortality is about 16 in the total thousand.

In 1900 there were about 12,800 deaths from measles, 6,300 from scarlet fever, 3,500 from small pox, 97 from chicken pox and 77 from roseola. The total deaths for the year were so close to a million that, by moving decimal points, we may use these figures to represent per cent. or per mille of the total mortality. The insignificant mortality from the last two is even better proof of their mildness than one would naturally suppose, judging from general impressions. The considerable—and almost utterly unnecessary—mortality from small pox is surprising, as is also the apparent fact that measles kills almost twice as many as scarlet fever. Although the incidence of the former is higher, it is probable that much of the scarlatinal mortality is recorded as due to kidney lesions.

We remember with shame, that in the early days of our practice, we listened with scorn to the eloquence of a retired eclectic physician, pleading, as a citizen, for systematic research to determine the cause and to institute an efficient prophylaxis against, these scourges of childhood.

The Physician in Russia.—Realizing the great value of the services of the physician in the relief of pain and suffering, Czar Peter the Great decreed that the physician should always serve a patient when called without asking a fee, leaving recompense to the decision of the grateful sufferer. In the days of an itinerant priesthood, perhaps this method was serviceable enough, though that is doubtful. In these days of lesser darkness, the method is atrocious. Yet it is still in vogue. No Russian physician is allowed to, or does ask a fee. He may approximate to it by answering that a previous patient paid him a certain amount, if pressed by a question. But even if the probable cost of a proposed surgical operation is being considered, he may not say that he is entitled to any sum for operating. The natural result is that few good men enter the ranks of physicians in Russia, unless they have independent means. It is said that the best Russian physicians come from the Baltic provinces and are equipped with German blood. Reputable people as a rule fee the doctor properly, and his income is fairly sufficient. But each fee is an odious "tip," not a honorarium, because of the tradition. In one instance a good, though limited, physician was so overjoyed at the receipt from an American of an unusually large "tip," that he made amends by vaccinating two children free of cost to the father, refusing an extra "tip" for the service.

BIBLIOGRAPHICAL

A Text-Book of the Practice of Medicine. By James M. Anders, M.D., Ph.D., LL.D., Professor of the Theory and Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Eighth revised edition. Octavo of 1,317 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$5.50 net; half Morocco, \$7.00 net.

This classical work, having reached its eighth edition, it is only necessary to announce that the present issue has been brought thoroughly to date.

Synthetic induction diagnosis, differential diagnosis and treatment, have been more fully elaborated in accurate detail than formerly, and the illustrations have been increased in number.

The resources of preventive medicine, dietetics and physiologic and medicinal therapeutics, have been enlisted in behalf of the all-important subject of treatment.

The classification of subjects has been improved in a systematic manner, so that the arrangement serves as a key to the details of the subject matter.

The animal parasitic diseases have been rearranged and grouped together, and many of the articles have been re-written.

The student will find this popular work in the very front rank of text books on practice.

A Treatise on Diseases of the Skin. For the use of Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Fifth edition revised. Handsome octavo of 1,150 pages, with 267 text-illustrations, and 34 full-page colored and half-tone plates. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$6.00 net; half Morocco, \$7.50 net.

This thoroughly practical and most useful work, is still kept in the very front rank by revision. The additions and changes are found mostly in those diseases peculiar to tropical countries.

The eruptions of the leukemias receive attention for the first time in this work. The rare condition "marginalgia paresthetica" is briefly presented.

The work has always been superbly illustrated, and there are many new cuts and plates in the present edition.

The student should have this treatise as his text-book and the general practitioner needs it as a hand-book. We cannot commend it too highly.

A Text-Book of Pathology. With an introductory section on post-mortem examinations and the methods of preserving and examining diseased tissues. By Francis Delafield, M.D., LL.D., Emeritus Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. Mitchell Prudden, M.D., LL.D., Professor of Pathology and Director of the Department of Pathology, College of Physicians and Surgeons, Columbia University, New York. Eighth edition, with thirteen full-page plates and six hundred and fifty illustrations in the text, in black and colors. New York: William Wood & Company, 1907. Octavo pp. 1,057. Muslin, \$5.50; leather, \$6.50.

This is another of the classical works which has reached its eighth edition, but long ago became standard.

In the present edition the section in general pathology has been rewritten and expanded, and various aspects of pathological physiology have received more attention, and the relationship of pathology to the allied phases of biological science has been emphasized and made more practical.

The text has been largely revised and many illustrations added. No expense has been spared by the publishers to make the volume peerless for its purpose.

A Manual of Orthopedic Surgery. By Augustus Thorndyke, M.D., Assistant in Orthopedics at the Harvard Medical School; Assistant Orthopedic Surgeon to the Children's Hospital, Boston, etc. With 191 illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Octavo, pp. 401. Price, \$2.50.

The author has attempted in this book to present his subject in a simple way for the benefit of the student and the practitioner. His grouping is both etiological and chronological, and while admitting the impossibility of an absolute classification, he has tried to save the student the confusion of mind into which he is liable to fall.

For the purpose for which the book is intended none could be better, it is well illustrated, and we commend it.

A Text-Book of Physiology. By Isaac Ott, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. Second revised edition. Illustrated with 393 half-tone engravings, many in colors. Royal octavo, 815 pages. Bound in extra cloth. Price, \$3.50, net. F. A. Davis Company, Philadelphia, Pa., 1907.

The present edition of this text book has been enlarged by the addition of two hundred and forty pages.

The subject of electro-physiology has been treated more comprehensively than in the former edition, the article upon the sympathetic system rewritten and brought up to date, and the chapter on vision revised. There is evidence of change for the better in every part. There are a great number of additional figures, many of which are original, and we may say the text is well illustrated.

The work is worthy of our commendation.

Blood-Stains; Their Detection and the Determination of Their Source. A manual for the medical and legal professions. By Major W. D. Sutherland, of His Majesty's Indian Medical Service, Doctor of Medicine. New York: William Wood & Company, 1907. Octavo, pp. 167.

This little book is a compendium of the modern tests by which the detection of blood-stains and the determination of their source may be carried out, and the rise of their jurisprudence traced.

It is the most complete and practical treatise on the subject with which we are familiar, and covers all the chemical spectroscopic and microscopic tests which have been found reliable.

The subject is a difficult one, and the author deserves our thanks for the clear manner in which he has presented it.

Kirke's Hand-Book of Physiology. Revised and rewritten. By Charles Wilson Greene, A.M., Ph.D., Professor of Physiology and Pharmacology, Univer-

sity of Missouri. Sixth American revision. With five hundred and seven illustrations, including many in colors. New York: William Wood & Company, 1907.

In this revision the constant effort has been to increase the strictly physiological subject matter of the volume, and to reduce the anatomical and histological discussions to the minimum required for the presentation of the physiology. Many of the older illustrations of structure have been dropped, and newer ones have taken their places. A large number of new physiological illustrations have been introduced. These have been chosen to illustrate such typical reactions as should be made the foundation of a modern lecture and laboratory course in physiology.

Several of the chapters have been entirely re-written, especially the chapters on the blood, circulation, respiration, and the nervous system. Every chapter has been reorganized, and sections entirely re-written. The material has been chosen with a view to presenting a student's handbook. The facts of recent research have been incorporated, and the newer explanations of physiological processes have been utilized wherever possible. It has not been the aim of either the revisor or of the publishers to present an encyclopedia of physiology or a text-book for the investigator, but rather to perfect the volume as a medical student's manual which shall keep pace with the present rapid advances of medical education.

The student's need is especially recognized by the incorporation of detailed directions for a course of laboratory experiments. The experiments chosen are representative, rather than exhaustive. They include the classical experiments which should be a part of the experience of every student—without which he cannot hope to become proficient in the science of physiology.

No effort or expense has been spared to present a volume that shall continue to deserve the generous support that the Handbook has received at the hands of the American medical profession.

The Internal Secretions and Their Principles of Medicine. By Charles E. de M. Sajous, M.D., Fellow of the College of Physicians of Philadelphia; Formerly Lecturer on Laryngology in Jefferson Medical College, and Professor of Anatomy and Physiology in the Wagner Institute of Science. Volume II., with twenty-five illustrations. Philadelphia: F. A. Davis Co., 1907. Octavo, pp. 1873.

Many of our readers will recall the interest and enthusiasm with which the first volume of this great effort was received by the profession in 1903.

We are surprised to learn from the preface of the present volume that investigators, physiologists, etc., failed to be impressed by the first volume.

The author's aim is to point out the main cause of the present deplorable state of practical medicine, and if possible, to eliminate it.

The author says that the failure of physiologists to explain the many functions which he refers to is due to the fact that they have overlooked the cardinal functions of the organs to which he has given special attention—the adrenals, the thyroid, the pituitary body and the leucocytes. He offers his work as a contribution of pathological biology to normal biology, of which physiology is a subdivision.

The author emphasizes the fact that "not a single

conclusion presented in this work is theoretical." He also claims that "the present unsatisfactory condition of medicine is due to the fact that investigators do not avail themselves of the enormous array of solid data available to ascertain the truth."

It has been the aim of the author of this work "to replace the empirical and hazardous use of remedies which has undermined increasingly the confidence of our best observers in them by a system of therapeutics based on solidly established facts which makes it possible to trace every phase of their action to its source."

The work introduces no new remedies, but is simply an attempt to show how to use those we have, leaving no doubt as to their efficiency.

There has been added to the physiological action of drugs in morbid processes, a department in which the pathogenesis and treatment of the most fatal and distressing diseases with which we have to deal, are treated in full, such as angina pectoris, pulmonary tuberculosis, cancer, etc.

There is also a supplement dealing with diseases in which the adrenal system and the nerve centers of the pituitary body play a leading part.

This treatise shows the result of a wonderful amount of original investigation and research, and is worthy of the careful study of the practitioner, to determine its practicability.

It may be called a new system of practice, the indications for the use of remedies being so different from what we have been used to.

Our readers should not fail to examine this work for its great possibilities.

The Enthusiasm of Homœopathy. With the story of a great enthusiast. By John H. Clarke, M.D. Reprinted from the Journal of the British Homœopathic Society, January, 1907. London: Homœopathic Publishing Co., 1907. Price one shilling net. The presidential address before the British Homœopathic Society delivered October, 1906.

Our homœopathic friends will be delighted with this history of the enthusiasm of their beloved cause, so classically told by one of their brightest colleagues.

Essentials of Medical Gynecology. According to the Eclectic or Specific Practice of Medicine in the Treatment of Disease. By A. F. Stephens, M.D., Professor of Medical Gynecology in the American Medical College, St. Louis, Mo. 12mo, 428 pp. Fully illustrated. Cloth, \$3.00. The Scudder Brothers Co., Cincinnati, Ohio.

In this work the subject of gynecology is considered from the standpoint of the medical practitioner, and the measures recommended for the treatment of the various diseases include the essentials only.

The treatment is based upon the Eclectic System of practice.

The author does not ignore or condemn the surgical treatment of diseases of women in his attempt to show what may be done by medicinal means.

The book will be found of great service to those for whom it was intended.

A crushed leg should be amputated, states M. Sinbe (*La Presse Med.*, Aug. 3, '07) in the presence of these conditions: Multiple comminuted fracture; mangle or removal of the skin; crushing of the deep soft parts (muscles, vessels and nerves).

CORRESPONDENCE

A HOSPITAL PROPOSED TO TEACH THE SCIENCE OF HEALTH.

To the Editor of the MEDICAL TIMES:—

The medical student is taught that disease is curable by the administration of chemicals, drugs and serums. The list includes more than 50,000 remedies and grows larger and more confusing each year. The possible experiments upon animals and men are without limit, and to try these remedies would require millions of animals, tens of thousands of years and the efforts of the entire medical profession.

Since chemistry is endless, it is safe to say that vivi-sections will find apology for animal experiments for a thousand years to come, and even then the question will be as far from settled as ever.

Within the present generation, preparations of animal blood and flesh from artificially diseased domestic animals have obtained extensive recognition and employment as "specifics." Yet it is the verdict of the medical profession that there are no specifics. The State of Kansas went so far as to consider a bill to legalize the use of serum in diphtheria. Think of statutory therapeutics in a free land! Of course, the bill did not become law.

Commerce seeks its own ends, and so every physician in Christendom is drummed by letter, circular, pamphlet, and by every way known to trade, in the interest of the drug business. The patient is the source of revenue to the trade and the physician is the medium. Everyone has felt the effect of persistent advertising, and by it drugs and methods of treatment are kept before the doctor and the ailing long after the thing is out of date. I believe trade methods mainly responsible for present day therapeutic pandemonium.

A modern institution is the so-called biological laboratory, now found in cities, towns and even villages, encouraged by medical, religious and secular press and public sentiment (brought about by trade advertising), operated in the name of science, but in fact, for business gain. Those who favor drugs, chemicals, serums and vivi-section do so under the belief that they confer benefit, or are acting in the interest of trade. In any event the sick are exploited and the habit of thinking a thing useful in time grows to the dignity of doctrine. Once the practice or use is entrenched, it is up-hill work rooting it out. The tendency is toward serums and vivi-section. There is a certain amount of mental medical discipline in it, but I feel that the price we pay for it is costly and against welfare and progress.

A great many scientific men and others are opposed to vivi-section and serums, but as yet the sentiment is not strong enough to abate it. I feel certain that a few years will see the end of vivi-section and serums, both to the honor and usefulness of the profession.

Vivi-section is practised by governments, colleges, pharmacies, experimental institutions and in private, the object being either trade or research. The principal reason for it is trade. Even though the claims for discoveries in cancer, lung and other treatments come to nothing, as mature physicians have lived to see, still the vain search for the unnatural and impossible treatment goes on and is ever just on the eve

of great things. The great things are like rainbows, out of reach, interesting, but not useful or saving.

What is to be done for the abatement of animal experimentation in the medical sciences? Why should the physicians insist on *vivi*-section and serum treatment if there are ways and means competent to deal with disease that are unobjectionable? Why need physicians use ways that offend the senses of progressive and good men and women?

The greatest need of the world is health, with a system of natural treatment for the sick. How is this to be attained, how can we satisfy that class of men engaged in *vivi*-section and serum traffic?

I propose a Normal Hospital to teach the science of health and scientific means for the treatment of the sick. This teaching hospital to be fittingly housed, adequately equipped and properly endowed to give it usefulness and standing.

The aim would include the scientific use of natural or normal methods of treatment as against the artificial and empiric. Physical management and diet should constitute the fundamental treatment. The staff should be under the direction of a chief, and large as possible and appointed to serve for one year.

Physicians to be freely admitted to observe the treatment and every privilege arranged for noting progress and results. But especially an open field to study the normal treatment compared with the current practice by drugs, chemicals and serums as used elsewhere. The object being progress and welfare, not the continuance of out-of-date practice.

The public school neglects its greatest usefulness, in as much as it omits health instruction for teaching of less importance. I believe the principal explanation for this defect in popular education is an absence of competent teachers to carry on health instruction.

Is there any need or excuse for *vivi*-section and serums? In the course of a long and general practice I have met and continue to meet the crises in disease without the use of *vivi*-section and serum treatment. In my practice these things are out of date. Natural methods and domestic remedies furnish an adequate treatment in the hands of the trained and discerning physician. The reason why the many employ the less safe and useful, is that such persons are not familiar with the use of the best things. I can see no necessity for *vivi*-section in practice, since man's health and safety of life are not in the nature of things dependent upon animal experiment or serum. In surgery, dissections and operative practice afford scope for any ambitious surgeon. I know there are some who cannot see this as I understand it. Such physicians are to go on according to their light; some will find truth, others will miss it even though it be in front of the eyes.

Yet so long as public sentiment favors the plausible, but really forlorn hope of having health bettered by anything that may be derived from tortured animals, the reformation of *vivi*-section is apt to be slow, contested and costly. The majority believe in traditional vaccination and inoculation, and even when proved to be a fetich, still fear to distrust its alleged benefits. For one I have cast off belief in animal viruses and serums and have my attention on newer ways and find that they better satisfy the tests. I refer to treatment by physical methods and diet. Some cannot

understand this, I know. So moves our beautiful world and its unhappy, sorrowing creatures, higher and lower animals suffering and dying for lack of understanding. The time is coming when health, happiness and kindly sympathy will prevail for all alike, man and beast.

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"REGULAR MEDICINE."

To the Editor of the MEDICAL TIMES.

Quite a number of articles have appeared rather recently, commenting on the usurpation of the term "Regular," by a certain rather large body of medical men, to designate their method of practice and themselves. It has been objected that the use of this word implies irregularity on the part of practitioners of other schools, either in the legal or ethical sense, and that this implication is especially unjust as applying to Homœopaths, who have always stood for as thorough preparation in medicine and for as high ethical standards of professional life as the "regulars" themselves.

Now it seems to us that the assumption of any such implication is as far fetched as it would be in regard to the designation of a body of men on political or religious lines. Even in the times of the bitterest political feeling, we doubt whether it ever occurred to a Republican to consider that the term Democrat implied that he himself was undemocratic; or to a Democrat that the term Republican implied an advocacy of monarchialism or some other form of government by those of opposite party affiliation.

Methodists have never been accused, to our knowledge of accusing other sects of unsystematic methods; nor Presbyterians of implying that other sects were organizations of "kids." We do not even understand that the terms Catholic, Orthodox, Protestant, Evangelical, etc., are considered objectionable.

It is perfectly true that the term "Regular" is, in a sense arrogant, in exactly the same way that the term Catholic is for the Church or the term Stalwart was for certain Republicans a few years ago. The Catholic Church was not formed in recent historic times by the organization of a body of laymen and clergymen holding particular views as to religious dogmas. Whether we concede or deny its divine foundation with Peter as its original vice-regent and the popes as his successors and whether we hold that the Bishop of Rome presided at the earlier councils as a courtesy to a metropolitan, capital city, or as a matter of divine right, it is simply a matter of history that, for centuries, this church included all that there was of organized Christianity in western Europe. Thus, it was properly designated by the term Catholic which can scarcely be translated by any other word than general or universal. So far as we are aware, no objection has ever been made to the retention of this term, although Protestants have often applied to it such terms as Papal, Romish, etc., in reproach.

That part of the medical profession known as "Regular" is not in any correct sense of the word, a sect or school of medicine. Excepting in the sense that we might speak of Virchow's school of physicians or a school of physicians advocating digitalis in

the treatment of pneumonia, there never was a school of physicians in the modern sense until the time of Hahnemann. Physicians always have and probably always will differ among themselves and, very naturally, those holding certain views will seek more or less formal association with others of like views. The organization of other professions than the clergy has been very lax and local, until quite recent times and, as an expression of general race tendencies toward bigotry or intolerance, the degree of insistence upon conformity with the general consensus of opinion of the medical profession has varied. But it is simply a historic fact that the body of physicians to which the term "Regular" is now more or less willingly applied, has never had any fixed creed or any other basis of organization than the fact that its members were practising medicine.

Members of the schools of medicine established in adherence to certain pretty fixed doctrines, have christened the so-called Regulars "Allopaths." If this term were correct, there would be no particular objection to its use though it would still not be the one chosen by the so-called "Regulars" themselves, any more than the Catholic Church would choose the term Trinitarian or Papal or Roman as an official designation. But, as a matter of fact, the "Regular" profession of medicine has never formally recognized that its treatment should be allopathic or, indeed, guided by any single principle. The only term that would not be as objectionable as "Regular," which we can think of as at all applicable, is Eclectic, and this has a well-known sectarian significance to which the "Regulars" themselves have never formally objected.

It should be clearly understood that the physicians who are known as "Regulars" consist essentially, not of men who advocate this or that therapeutic or scientific belief, but of men practising a certain profession who have no convictions that they consider sufficient to separate them from other practitioners. Thus, even if the term "Regular" were discarded, it would have to be supplied by some such word as Original or Unspecified, or General, or Catholic, to any one of which, practically the same objection might be raised.

To try to force upon the "Regular" profession such a term as Allopathic is precisely as irrational as it would be for Prohibitionists to call those not in their ranks Drunkards, or for Democrats to call their opponents Monarchists or Plutocrats. If any term can be found which recognizes the fact that the present "Regulars" are simply doctors who do not care to be differentiated from the general profession on account of individual opinions, there would be no objection to its adoption. Meantime, we would advise those who consider their therapeutic opinions as requiring affiliation with others of like belief, to remember that the "Regulars" use that term, not to reproach those who prefer to remain outside of their organizations, but because the very ones who have caused the differentiation of the medical profession have rendered it necessary to use a more definite word than physician. The great majority of the men known as "Regulars" deplore the fact that they cannot simply say that they are physicians, just as one might say that he was a lawyer or a carpenter. Moreover, whatever may have been the case in the past, when the race had not yet learned the lesson of liberality, there is no question

but that at present the American Medical Association or any analogous body would vote to admit any individual or group of physicians of ethical practice, of any therapeutic belief whatever, provided that belief were held simply as a matter of personal opinion.

Here is implied a very practical solution of the whole difficulty. Let the men who consider the term "Regular" as arrogant, come in with those who want no other designation than physician, retaining, if they please, affiliations similar to those of dermatologists and other specialists, or as might be formed by men who do not believe in the use of mydriatics for refraction, or who object to the routine removal of the appendix when it is inflamed, or who advocate the practically exclusive use of hydrotherapy and hygienic measures or who hold special views in regard to any moot point in medical science and art.

RETROSPECTIVE

Tetanus, undoubtedly sometimes confused with tetany, strychnine or other convulsant poisoning, meningitis, hysteria, and other conditions characterized by convulsions, was quite accurately described by Hippocrates and was probably familiar to physicians before his time. While tetanus occasionally occurs without demonstrable traumatism, as so-called idiopathic tetanus of adults and trismus neonatorum—which is probably in many instances not tetanus in any true sense—it has, in nearly all civilized communities and by practically all observers, from ancient to modern times, been associated mainly with traumatism by slender, sharp pointed instruments. Rather recently in the history of the world, another prolific source of tetanus has developed, namely, wounds produced by the explosion of powder, and especially from blank cartridges containing or consisting mainly of paper. Viewed from the standpoint of the clinician before the days of bacteriology, tetanus presented many puzzling inconsistencies. For example, dagger wounds rarely caused tetanus; there was no possibility of predicting even from large experience when tetanus would develop and when it would not; rusty and dirty nails, fork tines, etc., were rather more likely to produce tetanus than clean (in the popular sense) instruments, and yet many extremely filthy wounds failed to be forerunners of tetanus and, indeed, the speedy development of pus and an unusually extensive laceration and septic infection of the tissues rather militated against the development of tetanus. When it was found that cartridge explosions were also especially liable to produce tetanus, the lack of analogy between this new cause and the long established ones, was, for a few years, an additional source of surprise and speculation.

Bacteriology has, however, cleared up the puzzle in a simple and satisfactory way save that, as in all other diseases, occasional cases must always occur in which the exact etiologic process is obscure. The tetanus bacillus becomes virulent only as an anaerobe. Hence, wounds, however severe and however septic, are not likely to cause tetanus unless analogous to a stab culture. Thus, the time-honored etiology by means of nails, tines, etc., and the more modern one by means of powder explosions, are explained, since wounds of such etiology are the principal ones in which immediate closure and exclusion of air occur.

Some minor inconsistencies in the development or non-development of tetanus are easily explained by analogy. It is obviously impossible to declare with certainty when the condition of air-tightness is fulfilled. A slender instrument may leave a patent wound, while a larger one or, in particular, a powder explosion may leave, in the ramifications of an apparently broad and superficial laceration, some tract which closes hermetically immediately. So, too, quite in analogy with erysipelas, there may be an implantation of bacteria in invisible fissures or in minute wounds that have attracted no attention. Anders and Morgan (News, July 22, '05, page 187) reviewed 1,201 cases of tetanus in the literature and found none in which the infection did not enter through the skin. Still, it is possible that some cases of idiopathic tetanus may be closely analogous to the so-called internal or intestinal anthrax. Caussade (Trib. Med., June 26, '04) reports a fatal case following typhoid, in which no hypodermics had been used.

The resemblance between tetanus and hydrophobia has long attracted attention and, indeed, a very plausible argument has been made that the latter is nothing but tetanus or the hysteria of fright or both. The late Dr. D. Hayes Agnew used to say that if anyone had ever seen a case of hydrophobia, he would have no doubt as to the difference of the two diseases and, still, it may be questioned whether the symptomatology is more in contrast than that of moderate and of malignant cases of any other infection. So far as we know, no case considered clinically on due deliberation to be hydrophobia, has ever been demonstrated to be tetanus and, on the other hand, no considerable mass of careful investigations on this point is available, and the evidence as to the specificity of hydrophobia is somewhat uncertain. Speaking generally, the animals whose bite causes hydrophobia are the very ones whose mouths would be likely to be contaminated with tetanus bacilli and it is altogether probable that the teeth of cats and dogs, contaminated with garden dirt, etc., may occasionally convey tetanus, whatever the ultimate decision with regard to hydrophobia.

Norris (Phila. Med. Jour., May 16, '03) analyzed the cases of tetanus at the Pennsylvania Hospital for the period of 29 years. From 1807 to 1892, no cases were received, the explanation being unknown. Of the total of 57 cases, fourteen were due to the classical punctured wounds, sixteen to lacerations and contusions, one to an incision, five to gun-shot, eleven to burns, one to vaccination, bee sting, miscarriage and carious tooth, each. Most of the cases occurred in the warm months.

The Journal of the A. M. A. has compiled statistics of fourth of July tetanus for several years, as follows:

1903: 415 cases, 1,672 blank cartridge wounds, 15 other tetanus cases.

1904: 105 cases, 1,005 blank cartridge wounds, 55 other tetanus cases.

1905: 104 cases, 809 blank cartridge wounds, 32 other tetanus cases.

1906: 89 cases, 979 blank cartridge wounds, 60 other tetanus cases.

The relative importance of Independence day as a

remote cause of tetanus is significant. The detailed cause of the fourth of July cases is also interesting:

Year	Blank cartridges. Cases.	Giant cracker. Cases.	Cannon. Cases.	Firearms. Cases.	Powder, etc. Cases.
1903....	363, 87+%	17, 4+%	5, 1+%	3, 1-%	27, 7-%
1904....	74, 70+%	18, 17+%	5, 5-%	1, 1-%	7, 7-%
1905....	65, 62+%	17, 16+%	4, 4-%	5, 5-%	13, 12+%
1906....	54, 60+%	17, 19+%	1, 1+%	7, 8-%	10, 11+%

The comparatively brief period of the statistics renders it unwise to attempt to draw conclusions from these figures although the fact that the diminution has been mainly in the first column suggests that the long continued preaching against the toy pistol has begun to produce conviction among law givers and parents.

In any case of tetanus, the vulnerating object may be incriminated or it may serve merely to introduce germs accidentally present on the skin. Obviously, the probabilities vary from the former to the latter directly as the area of skin affected or inversely as the cross section of the vulnerating medium, and also, directly according to the contamination of the vulnerating medium or the skin, respectively. In general, puncture tetanus is probably due to the implement, while cartridge tetanus, unless the manufacture involves the use of soiled materials, is probably due to the driving in of bacilli from the surface of the skin. Contrasting the ingredients of cartridges and the ordinary methods of factories with the normal state of an active small boy's hands, it is easy to see where the probability lies. Still, in medical matters, there is an excellent motto: "Don't think, experiment." Bain (Jour. of Boston Soc. of Med. Sci., May-June, 1901) found pseudo-tetanus bacilli, probably the same described by Tavel, in a blank cartridge wound from which no tetanus resulted. In the Annals of Surg., Mch., 1907, he reported the first case in which genuine tetanus bacilli were demonstrated in the wound without the development of the disease, the treatment having been by prompt excision.

The most lamentable origin of tetanus is from therapeutic traumatism, including vaccination, use of suture and ligature material, injections of gelatin, etc.

D. H. Dolley (Jour. A. M. A., Feb. 11, 1905) investigated three makes of cartridges for the presence of *B. tetani* and *B. aerogenes capsulatus*. The powder gave negative results. Many wads of all three makes yielded growths of the latter germ. *B. tetani* was not directly demonstrated in the wads, but rats, rabbits and guinea pigs developed tetanus, which was inoculated into secondary victims, with positive results. Connolly (Med. Rec., 1903) also found tetanus bacilli in blank cartridges.

During the last few years quite a number of cases of tetanus have been reported to have followed vaccination, although the number is extremely small as compared with the vast number of vaccinations. M. J. Rosenau (Hygienic Lab. of the U. S. P. H. & M. H. S., Bull. No. 12, 1903) reports negative results from a large number of vaccine samples tested but he has demonstrated that tetanus bacilli may grow in vaccine. Carini (Zeit. fur Bakt., Vol. 1, 1905) found tetanus bacilli in five of 400 specimens from 50 sources, but he used some of the contaminated specimens for vaccination without untoward results! Such experimentation is extremely interesting but scarcely in keeping with American precedents. His plea for

superficial excoriation is, however, well taken, for the skin of dirty school children may lodge tetanus bacilli and puncture-vaccination may result in clinical tetanus.

The use of gelatin as a styptic may produce tetanus. Anderson (Bull. No. 9, U. S., P. H. & M. H. S., 1902) collected six cases and details experimental demonstrations. Gerulanos (Deutsche Zeit. für Chir. Vol. 61, No. 3 & 4, 1902) reports a case, as does Dieulafoy (Rev. de Chir. No. 7, 1903), the last case developing in spite of half an hour's boiling. Dorsett (Am. Jour. of Obs., Nov., 1902) reports two cases of tetanus due to infected ligatures, and other cases have been reported.

Tetanus bacilli are among the few bacteria which cannot be killed by momentary boiling. In order to kill all spores, intermittent, repeated boiling for an hour or so at a time, or protracted subjection to superheated steam, is necessary.

In seeking the ultimate cause of tetanus, other peculiarities are noticed. While the various infections differ in degree of contagiousness and may be contracted from fomites such fomites are, in most instances traceable to previous cases of the disease. Tetanus is neither endemic nor epidemic in the strict sense, although there is said to be an area about one by five miles, near Atlantic, N. J., in which it is unusually prevalent, and it is notoriously prevalent about July 4th, but, as each case then develops independently, there is no true epidemicity. We know of no instance of its direct transmission from patient to patient, although experimental transmission has been practised in the lower animals and, as the bacilli have been found in the blood, it is obvious that accidental inoculation from patient to patient might occur. While the entomophoric diseases may be ultimately derived from free living, that is, non-parasitic, fomites of germs, this hypothesis is unproved and certainly tetanus requires no intermediate insect host. There are only three clinically known infectious diseases in which the germs may be acquired from out-door sources, irrespective of contamination from previous cases of the disease, in man or animals and in which the germs seem to be able to propagate indefinitely without passing through the body of a host and thus producing disease: tetanus, actinomycosis and the various forms of sepsis. Actinomycosis is due to a higher fungus and is more in analogy with other mycotic lesions, which only rarely amount to true infections.

Thus, tetanus is the only strictly *specific, bacterial* disease whose germ is capable of an indefinite, non-parasitic existence, in a potentially virulent state and this peculiarity is doubtless connected with the unusual resistance of its spores.

While tetanus is, perhaps more strictly than any other infection, a dirt disease, it is open to serious question whether it is really an exception to the law governing nearly all other specific infections, even including various vermes as infectious parasites, namely, that the parasite is essentially obligately parasitic, though capable of sustaining life or even propagating for a comparatively brief period outside an animal host.

From the clinical standpoint, the rarity fatality, and semelincidence of tetanus, include it in a group with cerebro-spinal meningitis, hydrophobia, anthrax,

equinia and malignant oedema. All but the first are essentially diseases of quadrupeds and there is some reason for suspecting that this is no exception. In large stables, Dolley has shown that tetanus is liable to be what may be termed enzootic, the virus entering mainly through wounds of the legs produced in interfering and by accidental abrasions. The tetanus bacillus is also almost constantly found as an intestinal parasite of horses, and, less constantly, in other herbivora, which may be supposed to acquire it by browsing in pastures contaminated by horses. It has also been found in 20-30 per cent. of examinations of faeces of stablemen, field hands and vegetarians.

Thus, it seems highly probable that the almost uniform finding of tetanus bacilli in garden dirt, dirt of cities and, to a large degree, in the dirt of civilized communities generally, is due to the dissemination of particles of horse manure, and secondarily, of the manure of animals which have acquired the bacillus indirectly from horse manure. So far as we are aware, tetanus is not known in communities of savages or barbarians, among whom the horse is unknown. A large series of careful investigations should be undertaken to show whether the tetanus bacillus exists in what may be called wild dirt, where horses and quadrupeds secondarily affected, are unknown.

In conclusion, we may call attention to the paradox, already explained by the anaerobic condition of virulent life of the germ, that a bacterium so ubiquitous in civilized communities, so rarely produces disease.

Uremia and Eclampsia.—Uremic coma is a toxemia probably due to the retention of an excess of excrementitious nitrogenous substances. One may get a history of chronic renal disease. Convulsions, delirium or mania often initiate this coma. There is the swollen pallor of the face with puffy lower lids, and epileptiform twitchings of the facial muscles. The pupils may be dilated; the ophthalmoscope may reveal a retinitis. The history of the case may reveal that sudden temporary blindness was experienced before the coma; there may also have been severe occipital headache, vomiting, nausea and diarrhoea, and "renal asthma." The tongue is dry and brown; the breath urinous and ammoniacal. There may be muscular twitchings or hemi- or monoplegia, due probably to cerebral oedema. The pulse will probably indicate arterio-sclerosis; it will be infrequent and of high tension. There will most likely be Cheyne-Stokes respiration. There will be a slight rise in temperature until shortly before death. The urine may indicate the causal renal lesion; it will exhibit albumen and casts. Either death results, or recovery with chronic nephritis. A coma recovered from is almost invariably followed by others, with an eventually fatal termination. Treatment: Saline purgation, venesection, hot air beneath the bed sheets or hot water baths, high rectal irrigation with hot normal salines, nitro-glycerin or nitrite of amyl for the high tension, morphine, chloroform inhalations during convulsions. **Eclampsia** is the result of kidney insufficiency or of a gestational toxæmia (Hirst: *Text-Book of Obstetrics*); and thus is essentially a uremia. The storing up in the blood of these poisonous substances results in an irritation of the arterioles, causing sudden and extreme contraction of their walls, or small thrombosis and embolisms in their capillaries, producing thus an acute cerebral

anemia which probably is the immediate cause of the convulsions. In addition there is the extreme irritability of the child-bearing period, predisposing to convulsive outbreaks. We come upon eclampsia about once in 300 pregnancies, more frequently in primiparae and in women illegitimately pregnant. It appears generally in labor, not so frequently during pregnancy and rarely during the puerperium. It should always be feared in the presence of kidney disease or disturbance during pregnancy. There are prodromal sharp pains in the head, the epigastrium or under the clavicle; there are mouches volantes, failure of vision and great restlessness; or perhaps stupor. In a few moments the attack comes on with a stare; the pupils are at first contracted; the eyelids twitch, the eyeballs roll, the mouth is pulled to one side, the neck is then affected, and the head is pulled first toward one shoulder and then toward the other. Finally the spasm seizes the trunk and the upper extremities, the arms are strongly flexed, the fingers are bent over the thumb, and the upper extremities work spasmodically to and from the median line in front of the chest. There is spasm of the respiratory muscles with closure of the teeth and lips, giving rise to jerky breathing with a characteristic sucking sound. The thighs may be tonically flexed upon the abdomen; otherwise the lower limbs are rarely affected. Consciousness is lost during the convulsive attacks and for some time afterwards; with each recurring fit the stupor deepens, until unbroken coma supervenes. The convulsion lasts a minute or two. The temperature rises higher with each fit. The urine taken by catheter during a seizure will turn almost solid by albumen coagulation when heated in a spoon. Preventive treatment lies in careful urinary examinations during pregnancy; albuminous and scanty urine should give much concern. Such symptoms as headache, disturbed vision, oedema, gastralgia, nausea, dyspepsia, palpitation of the heart, or a feeling of general malaise; an abnormal appearance, a rapid pulse, a coated tongue, foul breath or a dry, harsh skin, a sallow complexion should warn us. Where there is a gestational toxemia a diet mainly of milk should be instituted; meat, eggs, fish and the stronger nitrogenous vegetables should be excluded. A laxative at bedtime, copious draughts of water and a refrigerant diuretic should be prescribed. In the treatment of the convulsions Hirst declares the place of chloroform to be now settled. "No one would rely on it alone; but every one is willing to admit its value as an adjunct to other treatment. Diaphoresis and catharsis are essential. We use a hot wet-pack, hot air or vapor or a hot bath. A free sweat is quickly produced by heating half a dozen bricks on a kitchen stove, wrapping them in bath towels, disposing them about the trunk and lower limbs, pouring a pint or more of alcohol on them, and then covering bricks and patient with several blankets. Normal salt solution injected into the subcutaneous cellular tissue, especially under the breasts, promotes elimination by the skin. Free catharsis may be promoted by putting a drop of croton oil with a little sweet oil on the tongue; this will be found effective whether the patient can swallow or not. Quarter grain tablets of elaterium may be given in the same way. A patient who can swallow should take a concentrated solution of Epsom salts in dessertspoonful doses every fifteen minutes until thoroughly purged; Hirst has given sixteen ounces of this solution in repeated doses before the bowels be-

gan to move. Venesection will, in many cases, obviate pulmonary oedema and apoplexy. Morphine, to be effective, should be given in large doses. Veit has injected one-half grain in each convulsive seizure and has given as much as three grains in four to seven hours. (We should, for our part, deprecate the use of opiates in eclampsia, because of their tendency to lock up secretions.) Chloral, if given, must be administered by enema in large doses, up to a drachm; "as much as three drachms may be given in the twenty-four hours, or even more in bad cases." Veratrum viride may be effective; but it must be given cautiously. We should not interfere with the progress of labor, unless the os is fairly well dilated. Should eclampsia come on during pregnancy we should confine ourselves to combatting the convulsions; "having succeeded in subduing them, attention may then be directed to the delivery." Such operative procedures as vaginal caesarian section are to be condemned. The eclamptic are particularly liable to fatal shock from violent delivery or operative measures of any kind. By waiting a brief period, during which energetic treatment may be directed to the convulsive attacks, sufficient dilatation of the os may be secured naturally to permit delivery without excessive violence or too much loss of time. We proceed as soon as the os is dilated beyond the size of a dollar; then we apply forceps if the head is engaged in the pelvis, or if the head is not yet engaged or if the breech presents, we do a version and extract by the feet.

The premonitions and auræ of epilepsy are well considered by Church (*Mental and Nervous Diseases*). Many, but by no means all, epileptics present these indications by which attendants may anticipate an attack. There are temperamental or facial changes that are perhaps unnoticed by the patients themselves; these may come on several hours or even days before the convulsive explosion. There may be grinding of the teeth in sleep, twitching of the eyelids, face or extremities, tremors and restlessness; perhaps tingling of the skin, especially of the extremities; or peculiar sensations on the tongue or in the nose, a tickling of the palate, or disturbances of taste and smell; there may be photophobia or brilliant muscae, tinnitus, genital excitement, respiratory oppression, vague discomfort, mental stimulation or the reverse, unusual gaiety, irritability. Some are pale, others have faces suffused and puffy; there may be temporary erythemas and urticarial eruptions. The aura is the particular motor, sensory or phychic feature that immediately announces the attack; it occurs in fully one-half the cases; it is really the initial symptom. It sometimes represents an abridged attack. It may recur unrecognized for years. *Motor auræ* are: a sudden limited muscular contraction or tremor; there may be a series of co-ordinated automatic acts—the patient scratches at the pit of the stomach, or winks, or moistens his lips with his tongue, or makes a few efforts to swallow, starts forward or backward, rotates upon his vertical axis, coughs spasmodically, springs up, or rolls his eyes to one side, following with his head and body; unconsciousness at once follows, and the full fit occurs. Or there may be *sensory auræ*: there is a peculiar sensation which has been described as a "nagging feeling" commencing in the feet or in the epigastrium, mounting upward, so that consciousness usually fails as the upper part of the chest or the head

and neck are reached; there visual and auditory sensations (rarely of taste and smell). There may be *psychic auræ*: a sudden recollection or the instantaneous review of a lifetime, a sudden fixed idea may announce the convulsion; sometimes these precede a rapidly growing mental depression, a fervor, a feeling of mental exaltation or weakness, irritable impulses, gaiety, rage or quarrelsomeness. *Visceral auræ* are precordial pain, violent palpitation of the heart, respiratory anguish, laryngeal spasm, weight at the pit of the stomach, vomiting, colics and sudden imperative demands to evacuate the bladder or bowels. An elevation of temperature and increased arterial tension have been noted during these auræ. Church well reminds us that a systematic study of the patient is the first step toward treatment. Every possible source of local irritation must be investigated. The aura may direct attention to some body-disturbance that acts as an exciting cause of the fits. Asthenopia due to errors of refraction, or faulty eye muscles, nasal disease, pharyngeal tumors, maxillary or dental faults, gastric inadequacy, intestinal parasites, rectal ulcers, hemorrhoids and fissures, constipation, diarrhoea, vesical and genital affections, toxic conditions (especially in the stomach, intestines or kidneys), alcoholic, lead, tobacco, coffee, tea and dietetic errors—all such things and many more may lead to fits in the predisposed. Exhaustive examination of the patient from head to foot followed by the eradication of some even very slight lesion, may end the epileptic attacks. In treatment hygienic measures are of the greatest importance; the diet should be nourishing, easily digestible and of reasonable amount; baths, exercise—perhaps manual labor in moderation—and out-door life must keep the skin, muscles and circulation active and healthful; constipation must be avoided, rooms, ventilation, clothing, occupation, amusements and habits must all be well considered. Under such measures improvement is the rule; drugs, even the bromides, may under such regime be unnecessary.

The Caduceus, or the insignia of the Medical Department, is of long standing, having been tested for centuries and keeping its place up to the present time, states the *Army and Navy Journal*. In the earliest Greek art the caduceus was but a magic wand, without ornamentation. Adorned with laurel wreaths it represented victory. Later as a collection of pleasant traditions concerning the power of the wand and about the gods who carried it, grew up, it became customary to represent it with two serpents—the serpent was typical of wisdom—twined about it. Aesculapius, the son of Apollo, was not the only god carrying the caduceus as his symbol of authority. Mercury on one of his errands from Olympus, saw two snakes fighting. Since it was his business to settle such disputes, he caught up the snakes, twisted their tales together and twined them about his staff. In later mythology, when the other attributes of Mercury were diminished, and that of his office as Olympian messenger was magnified, it became customary to represent him in art as wearing winged sandals and a winged fillet about his head. It was natural, then, later to add the spreading wings to his staff and thus complete the idea of his swift passages upon the errands of his father Zeus. It can readily be seen how the wand with its serpents and wings representing magic powers in earth and air could be taken up as an emblem of healing. The wisdom of the creeping ser-

pents was supposed to have enabled them to search out vegetable bodies having healing powers. The men of the Middle Ages, when all healing was thought to come about only through the agency of incantations and various charms, when the world was indeed half pagan, continued to use the caduceus as the sign of the healing art. "From millenium to millenium, from century to century, from decade to decade, from year to year, the caduceus has kept the first place to indicate medical efficiency. Could there be a better emblem for the Medical Department of the United States Army?"

We Are Progressing.—The *Medical and Surgical Journal* tells how in 1899 Dr. P. C. Phillips, now in charge of the department of hygiene and physical education at Amherst College, prepared statistics showing that a college boy of the present day is taller and heavier and a girl taller, heavier and of greater chest girth than the boy and girl of the same age forty or fifty years ago; and Mr. J. H. Vines had at the same time ascertained similar facts regarding the boys in Marlborough and Rugby schools in England. Of the girls examined at Smith College in 1900-03 those at seventeen years showed a superiority of a half-inch in height, three pounds in weight, and two-thirds of an inch in chest girth over those of the same age in 1883-88. At eighteen years the superiority amounted to three-fifths of an inch in height, nearly three pounds in weight and a half-inch in chest girth. These figures were in general corroborated by those from Wellesley, Oberlin, Chicago, and Mount Holyoke Colleges.

The Amherst figures are from thousands of students, and they show the average heights and weights of students from seventeen to twenty to be as follows in three different periods:

HEIGHT OF AMHERST COLLEGE STUDENTS.

	1880-84.	1884-94.	1900-03.
Age.	Inches.	Inches.	Inches.
17 years.....	66.8	68.0	68.2
18 years.....	67.0	68.1	68.4
19 years.....	67.1	68.2	67.7
20 years.....	67.5	68.3	68.3

WEIGHT OF AMHERST COLLEGE STUDENTS.

	Pounds.	Pounds.	Pounds.
17 years.....	128.7	130.8	129.9
18 years.....	131.1	133.6	134.5
19 years.....	133.1	136.4	135.6
20 years.....	135.0	138.0	138.2

The statistics for 1900-03 would probably show the superiority more clearly were they as numerous as those for the preceding period. The measurements of freshmen for the years since 1903 show the class averages even higher in height, weight and strength than they were in the years 1900-03, although the average age is somewhat less. The health in our colleges, at least, is improving. In 1854 a New England college president declared: "The waning of the physical energies in the midway of the college course is almost the rule rather than the exception among us, and cases of complete breakdown are painfully numerous." We hear no such statements to-day; the health of our college, as probably also of our high school students, is generally better at graduation than on entrance.

"Swills." The *British Journal of Children's Diseases* states that a daily public school function is thus euphoniously termed; it is a cold plunge bath, into which all

the boys must tumble—be they weak or be they strong—immediately after exercise. All hot and perspiring, after a hard exercise, they rush for the bath, peel off their clothes and plunge in. "Poor little beggars, how the majority of them must loathe it." The primary effect of a cold bath is to contract the cutaneous capillaries and drive the blood from the skin to the underlying tissues and internal organs. The skin is blanched, the extremities become blue and there is a temporary sense of depression. To the robust there follows an exhilaration, the skin glows and feels warm, the pulse quickens and grows fuller and the respirations become deeper. Bathing under such conditions is a veritable tonic. There arises increased destruction and construction of tissues by oxidation, and the bather feels more vigorous in body and in mind. Cold baths increase the body weight, improve the blood, harden the muscles and sharpen the intellect; the digestive processes are strengthened and the appetite improved. The duration of the bath should depend upon the boy's strength; he should always leave the bath at the height of general exhilaration. The depressing effects of a cold bath are in proportion to its duration and to the temperature. Some boys never get the sensation of exhilaration; they never get warm and they feel wretched and depressed the rest of the day. For long hours after the bath they are incapable of both bodily and mental exertions; in such cases the circulation is feeble, the extremities are cold and lifeless, there are anorexia and sinking sensations in the epigastrium. The function entitled "swills" is thus a blessing to the healthy and vigorous boy under proper conditions; to the weakly it is quite the contrary and should be abandoned. Nor should hot and perspiring boys, who have been undergoing fatigue, take a cold plunge; latent mischief in the kidneys or any weakness in the lungs may thus be excited to activity. Cold baths should not be taken for three hours after a meal or immediately before a meal; or before breakfast (on an empty stomach). Boys should rub themselves vigorously with a rough towel after the bath. And bathing in public schools should be under the control of medical officers.

Heredity and Environment.—*The Lancet* reports a paper by Surgeon-Colonel F. H. Welch, which is illustrative of the bearing of these factors on the general status of the individual and the race and their progressive development or retrogression. In considering the influence of heredity on the organism, Welch protests again the modern view that acquired characteristics are not inherited. He does not consider that there is in the present state of our educational development sufficient individual altruism and national conscience to put into practice the proposal to regulate our social ills by a system of compulsory "Eugenics"; indeed, he believes that, considering heredity alone, our increased care for the lives of the children of the less favored classes clashes with the method of evolution by natural selection, whilst no artificial selection is yet ready to replace it. With regard to environment, Welch is more hopeful; here he sees the weapon of salvation for the race that evolution of intellect has given us, but he deprecates the national reluctance to wield it vigorously against degenerative tendencies. Robert Owen, for example, evidenced by his work during 26 years in New Lanark the enormous control that environment can have over hereditary tendencies.

He grasped this principle of improvement and was thereby able to redeem from utter degradation a community of 2,500 persons, without recourse in any case to legal punishment. The Bernardo homes to-day evidence like excellent results. Educated people may well consider with Welch what means commensurate to the needs are in operation to curtail the deteriorating influence of town life, with its overcrowding, on the physique and stamina of urban populations; to give, through a sufficiency of decent room-accommodation, the chance of the growth of modesty and continence among the young of both sexes; to abolish the superadded temptations to incontinence through the facilities from open solicitation in the streets; to provide institutes and wholesome recreation for men and boys and girls as counterpoise to the poor home, the beershop, and the vicious teaching of the streets; to foster many other wholesome influences. "It is the paramount duty of the race to search out by all means and to apply in every way the right methods of improving the environment in its units, for if we are to sit down impotently under the influence of heredity and submit as did the doomed Greek family to its Ate, then, indeed, must we consider the purpose of existence to be vain. It is in the control of heredity by self-planned environment that the true freedom of man will surely stand manifest."

Panic and Prejudice is the topic of a timely paper in the *Westminster Gazette* by W. K. McClure, in which he reprobates the public attitudes toward consumptives. There is a growing tendency to treat such a sufferer almost as an outcast—as one to be shunned from fear of infection. To realize that infection is chiefly conveyed by careless expectoration would do far more to prevent the spread of consumption than the callous ignorance which brands all consumptives as outcasts. The knowledge of the communicability of consumption from person to person, which is now so universally recognized, has resulted in a widespread misconception as to the mode of infection, so that no little hardship is inflicted upon those who suffer from this disease. For instance the warm health resorts of Southern Europe and Northern Africa are now practically barred to such sufferers. Mentone led the way in excluding them; some years ago the proprietors of first-class hotels agreed together to refuse guests known to be tuberculous. Their presence, it was feared, would hinder the development of Mentone as a pleasure resort. Consumptives can visit the Riviera practically only when they conceal the nature of their illness. The principal hotels at every resort from Hyeres to Rapallo refuse consumptives. One proprietor declared that many of the visitors made it a condition that no one suffering from lung disease should be taken as a guest. "The pleasure-seekers have made up their minds that consumptives must either remain in sanatoria in their own country, or if came abroad go straight to the Davos Valley and stay there." Such phthisiophobia is in the last degree reprehensible. We know that practically the only means of disseminating the infection is in dust containing tubercle bacilli. Given the most simple precautions in regard to the disposal of his sputum by the consumptive, the danger of infection is almost non-existent. The consumptive should not have his sufferings increased by being branded as dangerous and to be avoided.

MISCELLANY

Bronchiectasis is clinically very like the ordinary form of pulmonary tuberculosis, state Richard and Gurd (*Montreal Med. Jour.*). There is usually a large amount of more or less foul smelling sputum; hemoptysis is not uncommon, there may be a history of chills and sweats with progressive emaciation and weakness. The physical signs are those of acute bronchitis with cavity formations and consolidation. Repeated sputum examinations will usually reveal the absence of tubercle bacilli and the presence of the *bacillus influenzae*. Blood from these patients will produce an agglutination reaction similar to that commonly made use of in the diagnosis of typhoid.

In Iceland, according to the census of 1905, the people live on an average to the age of 61.8 years, which is nearly double the mean duration of life as it was computed a generation ago. Sweden and Norway are also very healthful countries; the mean duration of life in the former being 50.02 and in Norway 49.94 years. It is doubtful if any part of the world can exceed Iceland with regard to longevity. Perhaps this is because the lives of most of its people are simple and unexciting; there is very little in their lives either to stimulate or depress the pulse. However, states the *Sun*, the summer tourist is reaching the island in large numbers every year, and it is now tied to Europe by a submarine cable. The next census may show the effect of these innovations upon Iceland's longevity record.

The use of white clothing for the tropics has been adopted in imitation of native custom, states L. W. Sambon (*Jour. Trop. Med. and Hygiene*). No doubt it is wise to follow the dictates of long experience; but the whites who borrow this custom from the natives do not realize that the latter is already protected by a natural armor of pigment which is impervious to the harmful actinic rays. The native, having no reason to fear these rays, dresses in white, which by reflecting them, keeps him comfortably cool. White is for comfort, but health demands a lining of pigment. To avoid the additional weight and thickness of several layers of cloth Sambon suggests a fabric composed of white and colored threads woven so as to produce a warp or outer surface of white and a woof or inner surface of black, red or orange. Such a cloth, with a heat-reflecting outer surface and an opaque inner lining should meet all the requirements of comfort and protection for tropical use.

The hazardous experience of Dr Heinrich Kloft, a surgeon of the German steamship "Vandalia," which has been plying in Japanese and Chinese ports, deserves to be recorded. At Singapore he went ashore in company with the chief engineer to do some shooting. The two, however, became separated, and the latter returned to the ship alone. Eight days later he turned up and related how he had been captured by natives in a forbidden district in Jahora, a district inhabitable only by natives or "the faithful," which he had unwittingly entered. He was taken before the Sultan of Jahora, who would set him free only upon the basis of his ability to cure a relative of the Sultan. Dr. Kloft having accomplished this task within eight days, was not only liberated, but was presented in addition with a magnificent Oriental silk screen, a native parasol and

a sword, the gold on which is handsomely carved. By exhibiting these gifts the doctor is able to silence those who scoff at his tale.

Massage of the prostate has become a regular method in appropriate cases. (*Am. Jour. Dermat.*) It should be beneficial; it has been warmly endorsed and recommended by the best living genito-urinary surgeons. The good that has resulted when done by experts has, however, led to the practice by the inexperienced—and sometimes with disastrous results cases must be selected; not all are suitable for massage, which is a delicate procedure, to be done with due caution and care. The prostate is a delicate structure and will resent maltreatment; it must not be kneaded as if it were a lump of hard putty. Besides, continued massage is very apt to produce irritation of nerves belonging or related to the sacral plexus; one may therefore thus induce gluteal and sciatic neuritis and other neural disturbances in the pelvic region. A cautious and gentle massage, employed once a week is beneficial; but a rough and ready manipulation daily or every other day is certain to produce bad and disagreeable effects.

The attitude of orientals has been supposed to be averse to European methods of sanitation, observes the *Evening Post*; such has, however, not been the case with regard to a leper hospital which was opened in 1890 in Bombay. In the following year a census was made of the lepers in India, and there were found to be about a hundred thousand. This hospital had room for only 300; and the first fifty had to be taken into it forcibly by the police. Before long, however, the patients began to come voluntarily; and soon the hospital was filled to its capacity. One may at the present time witness the pathetic sight of a small group of lepers waiting with truly oriental patience and apathy at the gate of the hospital for the death of some patient to make room for one of them. And no wonder, states the *Berlin Tageblatt*; for the hospital, with its clean buildings, surrounded by gardens, and its situation commanding a fine view of the ocean, is a veritable paradise. The patients have every care and comfort that medical science offers, and provision is also made for their entertainment. Forty children are instructed in diverse branches by teachers who are themselves afflicted. In the women's division there are three pretty little bungalows for paying patients.

Cold Packs in Infantile Pneumonia.—Hekimoglou (*La Clinique*, Feb., '07), finds that drugs are practically useless and that the essentials of treatment are plenty of milk and free ventilation. He watches carefully for the appearance of cerebral or typhoid symptoms, which are apt to supervene in young children. In severe cases with nervous symptoms he uses cold packs (which he prefers to cold baths) as follows: A blanket is laid upon the bed and upon it a sheet which has been soaked in cold water. In this the child is wrapped up, the sheet being folded well around and between the legs and arms, so that the whole body comes in contact with it. The blanket is then folded over the sheet. The child is left in this sheet, which is then periodically remoistened until cure results or until such unfavorable symptoms as convulsions, trismus or opisthotonos have disappeared. Some cases have remained in the pack from six to ten days, the wet sheet being renewed at first every half hour and then every hour.

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A NUTRIENT TONIC WINE OF IMPORTED, FRENCH BORDEAUX, WITH A SPECIAL PROCESSING OF LEAVES OF ERYTHROXYLON COCA. PREPARED AND BOTTLED AT OUR NEW YORK LABORATORY FROM THE ORIGINAL FORMULA AS FIRST INTRODUCED BY ANGELO MARIANI, PARIS, FRANCE, NEARLY A HALF CENTURY AGO.

Do not confound this with Coca combinations based on the presence of Cocaine.

WE HAVE ALWAYS EMPHASIZED OUR USE OF COCA LEAVES SELECTED FOR AROMATIC AND MEDICINAL QUALITIES, AND AS EVEN THE NEGLIGIBLE CONTENT OF ALKALOID, INCIDENTAL TO SUCH LEAVES, IS NOT ESSENTIAL TO OUR FORMULA, OUR PROCESSING NOW ENTIRELY ELIMINATES EVERY TRACE OF COCAINE FROM THIS PREPARATION.

VIN MARIANI IS SO GUARANTEED ON THE LABEL UPON EACH BOTTLE ISSUED BY US SINCE EARLY IN MAY, 1907.

MARIANI AND COMPANY

NEW YORK: Laboratory and Office,
82 West 18th Street.

PARIS, FRANCE: 41 Boulevard Haussmann,
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Pyrenol

Chemical Compound of Salicylic Acid, Thymol and Benzoic Acid

Unites all the virtues of its constituents
but never causes gastric or renal irritation

In **Asthma, Bronchitis, Pertussis**—a prompt **Expectorant** and **Sedative**.
In **Pneumonia, Influenza**—a slow, steady **Antithermic** and **Cardiotonic**.
In **Rheumatism, Neuralgia** (migraine, sciatica)—a quickly-acting **Analgesic**.

Arhovin

Chemical Compound of Diphenylamine and Thymyl-Benzoic Acid

New gonocide for internal and topical use
free from the drawbacks of the older remedies

Acute Gonorrhea is **arrested**, or its course rendered **brief** and **painless**.
Chronic Gonorrhea, even in the **female**, is soon **improved** and finally **cured**.
Given in **capsules, urethral bougies, vaginal globules** or by **injection**.

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and **SAMPLES** from

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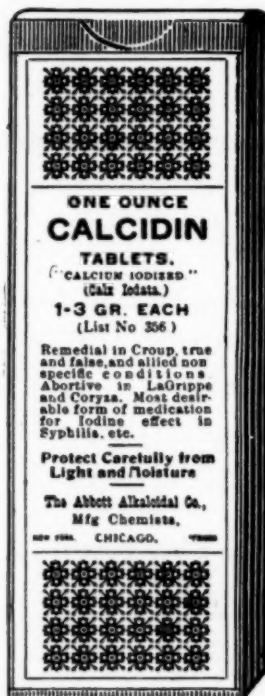
CALCIDIN

CALCIUM IODIZED (ABBOTT): (Calx Iodata)

The Best Remedy for Catarrhal Croup, La Grippe, Colds, etc. Also, with Nuclein and Mercury Biniodide, for Glandular Swellings

CALCIDIN (Calcium Iodized) is the most potent, non-irritating preparation of Iodine available in practical therapeutics. This powerful, safe and long-needed remedy must not be confused with the less efficient Calcium Iodide of commerce. It is a special and peculiar preparation of remarkable efficiency, carrying 15 per cent of available Iodine.

Calcidin (Abbott) liberates more available Iodine with less irritation than any other known preparation, and for this and other reasons is unquestionably the best form in which this remedy can be used.



Calcidin is a real "wonder-worker," in Croup, both true and false and allied exudative conditions. It is of great value in Diphtheria, used in connection with Calcium Sulphide, Antitoxin and other indicated remedies. It is most successful as an abortive for La Grippe, cold in the head, catarrhal bronchitis, hoarseness, asthma, whooping-cough and all throat affections; and as a resolvent in incipient phthisis. It is also highly useful in fibroid tumors and other hyperplasias, and is to be preferred to potassium iodide in syphilis, struma, etc.

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If there ever was a specific medicine Calcium Iodized (Calcidin) is for croup and hoarseness. Dr. E. M. D. Indiana.

Doctor, if you have not yet become acquainted with this valuable remedy, let us send you literature and samples at once, or send a trial order, money back if not satisfied.

Style and Price: Per ounce, one-third grain tablets, or powder, per bottle, 50 cents. Two-grain tablets, bottles of 100, 50 cents. Five-grain capsules, pure powder, per bottle of 50, 50 cents. Per dozen, either style or assorted, \$5.00. Delivery prepaid for cash with order.

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A soluble sulphur compound, devoid of the usual clinging, nauseous odor.

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Advantages of Digalen: Exact dosage, prompt effects; no gastric disturbances; may be used per os, per enema, by intravenous, subcutaneous, or intramuscular injection.

Because of infinitesimal dosage, Digalen is marketed only in solution, in $\frac{1}{4}$ -oz. vials.

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Odorless Wound Antiseptic.

Has all the good qualities of iodoform, without its disagreeable, persistent odor. "I have used Airol on everything from a fresh wound to a chronic ulcer, and found it satisfactory," writes Dr. G. E. Shively, Owensboro, Ky.

For samples and literature — Mark the name of the medicament of which you desire a sample; cut out this ad, and mail it to us with your address.

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Thiocol

Potassium Guaiaccol-sulphonate Roche.

A soluble form of guaiacol. Odorless; non-irritating; readily assimilated.

Incipient Tuberculosis, Chronic Coughs, Pneumonia, Typhoid Fever.

A Washington physician, treating a case of phthisis in which there had been nine attacks of haemoptysis, wrote on June 28, 1906: "The patient I mentioned (June 1) has gained five pounds. She has no more night-sweats, and is running a normal temperature."

Thiocol is procurable as Powder; in 5-grn. Tablets; as Syr. Thiocol Roche.

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SOMETIME ago it was noticed that when **PROTONUCLEIN** was given in cases of Malnutrition and Fevers and after the patients condition became normal and **PROTONUCLEIN** was continued, a marked aphrodisiac effect was noticed.

Experiments have been continued along this line and marked results obtained.

While ordinary **PROTONUCLEIN** can be used, yet for quicker results we would recommend

PROTONUCLEIN SPECIAL TABLETS

They come 80 in a bottle and the dose is two tablets between meals and at bed time, results showing from the third to tenth day. It builds up as well as stimulates.

The new Diet Leaflets are ready for distribution and will be sent if asked for.

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as we make them are strictly official, therefore dependable and accordingly meet the demands of the most ethical physician.

But few retailers have the necessary laboratory equipment to make such products accurately and without waste.

We have everything with which to make them right, including pure drugs and fifty years of practical experience. Therefore the particular retailer buys from us.

Does *your* druggist?

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Three Ages of Women--Third Stage

The menopause or climacteric is an epoch in the sexual life of woman defined by some authorities as *the* critical period. The secession of the menstrual flow should be normal but unfortunately most women suffer from circulatory, nervous, digestive and pelvic derangements.

Headache, Vertigo, Hysteria, Neuralgia, Melancholia, Hot Flashes with sensations of fullness or weight in the pelvis are the usual manifestations. In these cases a remedy which will tend to normalize the circulatory and nervous disturbance without creating a dangerous drug habit is the desideratum. Such a product is

HAYDEN'S VIBURNUM COMPOUND

which contains no narcotic nor habit forming drug.

For twenty-six years this remedy has stood the test of time in the treatment of diseases of women such as Amenorrhea, Dysmenorrhea, Menorrhagia, Metrorrhagia and the irregularities incident to the menopause.

It is the standard by which all other viburnum products would measure, therefore as an assurance of definite and satisfactory therapeutic results, it is necessary that you specify HAYDEN'S and that no substitute be given.

Literature upon request and Samples if express charges are paid.

NEW YORK PHARMACEUTICAL CO., Bedford Springs, Bedford, Mass.



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Commence at your next lying-in case and keep it up.

Samples for the obstetrical bag for the asking.

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60 Beekman St., New York



Nervous Exhaustion

Celerina

by its sedative action on the cerebro-spinal centers conserves nervous energy. It eases the strain on a nervous system keyed to the highest tension and, therefore, is an exceedingly valuable means of preventing the nervous collapse or breakdown that might otherwise occur.

As a result of its tono-sedative action, psychic equilibrium is established, and the individual with an overwrought nervous system is given new power and new energy.

In the treatment of functional nervous diseases, Celerina will be found of the greatest value, —sedative in its action, but tonic in its results.

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Buffalo LITHIA WATER

MEDICAL OPINIONS OF BUFFALO LITHIA WATER

Dr. J. Allison Hodges, *Pres. University College of Medicine, and Prof. of Nervous and Mental Diseases, Richmond, Va.* "In albuminuria of Pregnancy this water is one of the very best alkaline diuretics, and with milk diet, is one of my sheet anchors.

Edward M. Eldherr, M.D., Ph.D., Ch.D., Ph.G., *University of Vienna, Chicago, Ill.*: "I have found BUFFALO LITHIA WATER of undoubted service in the treatment of Uric Acid Gravel, Chronic Rheumatism and Gout."

Dr. William A. Hammond, *Surgeon-General (retired) U. S. Army, formerly Professor of Diseases of the Mind and Nervous System in the University of New York, etc., Washington, D. C.*: "I have had considerable experience with BUFFALO LITHIA WATER in the treatment of Bright's Disease. I have witnessed the Albuminuria of the affection, and also casts of the renal vessels, disappear on the use of the water, and this not only in a single case, but in several of which I have full notes. It must in these cases be taken in large quantities, and its use continued for a considerable time."

Additional Testimony
Upon Request to the **Proprietor, Buffalo Lithia Springs, VIRGINIA**

THE PHYSICIAN OF MANY YEARS' EXPERIENCE

KNOWS THAT, TO OBTAIN IMMEDIATE RESULTS

THERE IS NO REMEDY LIKE

SYR. HYPOPHOS. CO., FELLOWS.

MANY **Medical Journals** SPECIFICALLY MENTION THIS

PREPARATION AS BEING OF STERLING WORTH.

TRY IT, AND PROVE THESE FACTS.

SPECIAL NOTE.—Fellows' Syrup is never sold in bulk.

It can be obtained of chemists and pharmacists everywhere.

Buffalo LITHIA WATER

MEDICAL OPINIONS OF BUFFALO LITHIA WATER

Geo. Ben. Johnston, M.D., LL.D., *Prof. Gynecology and Abdominal Surgery, University of Virginia, Ex-Pres. Southern Surgical and Gynecological Assn., Ex-Pres. Virginia Medical Society and Surgeon Memorial Hospital Richmond, Va.:* "Almost any case of Pyelitis and Cystitis will be alleviated by it, and many cured."

Dr. Lewis Boshier, Richmond, Va., *Professor of Surgery, Medical College of Virginia:* "I have frequently used BUFFALO LITHIA WATER with the most satisfactory results in all conditions where an active diuretic is indicated and have found it especially serviceable in Rheumatic and Gouty Conditions, Albuminuria of Pregnancy, Catarrh of the Bladder, and other diseases affecting the urinary organs."

Dr. Stuart McGuire, Richmond, Va., *Surgeon in charge of St. Luke's Home, Professor of Principles of Surgery, and of Clinical Surgery, University College of Medicine Richmond, Va., etc.:* "In cases of headache from lithæmia of headache from passive congestion of the kidneys, of strangury from concentrated urine, and a host of other ills, I always advise BUFFALO LITHIA WATER."

Dr. P. B. Barringer, Chairman of Faculty and Professor of Physiology, University of Virginia, Charlottesville, Va.: "After twenty years' practice I have no hesitancy in stating that for prompt results I have found nothing to compare with BUFFALO LITHIA WATER in preventing Uric Acid Deposits in the body."

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Mulford's Diphtheria Antitoxin

is a highly concentrated and purified product

Prepared by our new process it possesses these advantages:

1. The Antitoxin Globulin is now precipitated from the non-antitoxic bodies by means of magnesium sulphate, since this salt is far less toxic and less irritating than the ammonium sulphate heretofore employed.
 2. By eliminating inert substances it is concentrated to a very small bulk.
 3. By prolonged dialysis it is purified from the inorganic salts.
 4. It conforms to a normal (physiologic) salt solution and is less liable to produce irritation and probably reduces the percentage of serum rashes.
 5. On account of its high concentration it is furnished in aseptic glass syringes of about one-fourth the regular size.
 6. The smaller bulk causes less pain and disturbance to the patient.
-

Write for our new brochures on Curative Sera, Bacterial Vaccines, Tuberculin and Tuberculin Therapy, compiled from recent authorities.

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SELECTIONS

Our subscribers generally prefer that this journal shall not be discontinued unless so requested. Kindly send us a card if you desire to discontinue when the period for which payment is made has expired.

In a paper on "The Medicinal Treatment of Hemorrhoids Without Surgical Intervention" (Therapeutic Medicine, January, 1907) Dr. M. R. Dinkelspiel says that he regards non-operative treatment indicated in incipient forms, when the hemorrhoids are secondary to other disease, as hepatic cirrhosis, tumors, etc., and when the hemorrhoids occur in aged individuals who cannot safely undergo operation.

Constipation is a most potent cause; and it must be cured, the defecations being so arranged that they occur at night, as the subsequent rest relieves engorgement.

Locally, cleanliness is of primary importance; the parts should be washed with witchhazel solution, of which 1 or 2 ozs. may also be injected into the rectum. Of late he uses the bismuth iodoresorcin-sulphonate suppositories (an-usol), which relieves the congestion and inflammation and liquefy the feces. When there also exists external inflammation, he slightly warms a suppository and gently anoints the parts. Under this treatment he has seen many cases recover without recurrence.

Dr. Fred C. Thum, formerly Demonstrator of Anatomy at the Kentucky University, Louisville, writes on "Subacute Alcoholic Hepatitis," a form intermediate between the acute hepatitis from a single protracted spree and the chronic hepatitis from long years of alcoholic excess. Calomel, podophyllin, etc., are not of very great use. Strikingly effective are pills consisting of salicylic acid, acid sodium oleate, phenol-phthalein and menthol (probin). They increase biliary secretion and render the bile sterile, thus inhibiting the inflammation in the hepatic structures.—Abstracted from Medical Progress, February, 1907.

"Flat-foot."—The rational remedy for this affection is a mechanical support for the arch of the foot. James S. Coward is the maker of the original arch prop shoe, and the only one constructed on true anatomical principles. His prices are reasonable and our readers will be sure of good treatment. Correspondence invited. Address, 268 Greenwich street.

The first application of Resinol Ointment

in itching and irritable conditions produces a feeling of comfort to the sufferer never before experienced.

It is the standard remedy for Eczema and acute inflammations of the skin and muco-cutaneous margins, and is a superior dressing for Burns, Bolls, Skin Abrasions and superficial wounds and sores.

IT IS THE RECOGNIZED SPECIFIC FOR
PRURITUS ANI, ITCHING PILES, ETC.

As a nutrient Soap for the Skin Resinol Soap

is without a parallel.

It nourishes the underlying tissues, prevents congestions and eruptions, obviates waste and atrophy, thus preventing wrinkling and cracking of the skin. It is superior to all others for the Hair and Scalp.

SAMPLES SENT ON REQUEST.

RESINOL CHEMICAL COMPANY,
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SAMPLES & LITERATURE
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For FASTIDIOUS
CONVALESCENTS

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**A New and Valuable
Granular Effervescent Salt**

**LITHIA & CAFFEINE
FOR ALKALINE TREATMENT**

ANTACID AND DIURETIC.

Remedy in Rheumatism, Gouty Diathesis, Cystitis, Gravel, Kidney Troubles and Uricemia.

SAMPLES TO DOCTORS ON REQUEST.

PREPARED ONLY BY

WM. R. WARNER & CO., Philadelphia,
Branches: New York, Chicago, New Orleans.

SELECTIONS

Bacteriological investigations published of late have called renewed attention to the acknowledged fact that, in vitro, collargolum has not such bactericide powers as silver salts, such as the nitrate. As this fact has led to a priori denials of its clinical efficacy, permit us to point out that the indubitable therapeutic action of the remedy—demonstrated by almost four hundred publications—is not dependent on germicide properties.

By reason of its colloidal nature, collargolum has vigorous catalytic effects which induce or enhance the processes of oxidizing bacterial toxins in the organism. This fact was proved experimentally by Schade, Hamburger, Robin and others. Professor Solis Cohen (Jour. Amer. Med. Asso., Oct. 20, 1906), stated:

"It is quite probable that the therapeutic value of colloidal silver is largely due to catalytic action in taking up and again yielding oxygen, thus destroying toxins, bacteria or diseased cells—a chemical amboceptor action, to take an illustration made familiar by Ehrlich—and through such action it may prevent or retard sepsis. Certainly it has a definite therapeutic action and should be employed more extensively in larger and more frequent doses."

An exhaustive study of the leucocytogenic action of collargolum was recently published by Dunger (Archiv f. klin. Med., 1907, Vol. 91, No. 3-4). He found that the intravenous collargolum injection was immediately followed by hypoleucocytosis. One or two hours later a hyperleucocytosis always occurred, usually up to 130 to 150 per cent., with a maximum of 260 per cent. After 20 to 24 hours the number sank to its original figure. He explains the hypoleucocytosis as due to the destruction of neutrophils, the later rise being an overcompensation of the defect from the bone marrow. The collargolum leucocytosis is favorable, because of the phagocytosis, by which micro-organisms are taken up and destroyed and inorganic bodies, such as silver particles, are carried outside the blood current, as to joint cavities. The marrow irritation occasions a stimulus to the formation of immunizing bodies. The leucocytic decomposition, setting free proteolytic ferment, is of the greatest importance for the solution and resorption of inflammatory exudations, especially of pneumonic infiltrations. This is confirmed by the author's experience with collargolum in a series of pneumonias.

That collargolum stimulates the formation of leucocytes, especially of the large, multinuclear forms, was also demonstrated by Rodsewicz, Achard and Weil, Ceresole, French, Widal and others.

When done under conditions closely simulating a clinical sepsis, animal experimentation with collargolum has always given favorable results—as the reports of many veterinary surgeons on the successful use of collargolum in infected horses, cows, etc., show. An artificially produced infection is, however, not analogous to one which occurs clinically; the intravenous injection of highly virulent bacterial cultures is far more brusque than the gradual development of a clinical sepsis. Moreover, in all laboratory experiments in which collargolum was administered to the animals simultaneously with the infective material, a negative result was to be expected, since the remedy is rapidly eliminated and has thus passed out of the body when the infection reached its height. Experimenters who waited with the administration of collargolum until the animals showed violent signs of illness, saved them (Beyer and Pinto).

The Medical Record visiting list is one of the finest and most compact lists published. The contents includes twenty-two of the more important emergency subjects. If required these lists are fitted into genuine seal and calfskin wallets.

The lists proper are in two books of six months each, and are removable from the wallets. They are much less bulky for the pocket. They are also economical, inasmuch as the leather covers may be made to do service for several years.

Wm. Wood & Co. issue their visiting list in the same style they do all their publications. Excellence and cheapness are marvelously combined. Correspondence solicited.

Hotel Gramatan is a first-class hostelry in a beautiful suburb, and still almost within the limits of New York City. It is easily reached by rapid transit from the Grand Central Station. The viands and service are all that can be desired. Mr. Lannin, the experienced and accomplished landlord, knows how to make his guests comfortable and happy, and is most assiduous in doing so.

Physicians will find it a suitable place to send patients who need a change of environment, and they can still remain in touch with them.

Members of the profession are invited to make personal investigation.

SELECTIONS

It certainly is of interest to medical practitioners to know that a very powerful antiseptic, germicide and disinfectant has been discovered which is practically free from all danger. The name of the product is Chinosol, the exact chemical name being potassium oxychinolin sulphonate.

The eminent German authorities, Beddies and Tischer in the Allg. Med. Centr.-Zeitung, state the power of Chinosol in arresting diphtheria, cholera, typhoid and saprophytic bacteria to be thirty to fifty times greater than carbolic acid. They state, in fact, that the bactericidal power of Chinosol is simply enormous.

Prof. Steenhuisen reports Chinosol as being far superior to corrosive sublimate or carbolic acid.

Prof. Emerich reports favorable results in the treatment of ulcers and infected wounds with a Chinosol solution even as weak as 1 to 40,000 and yet over 125 grains of pure Chinosol have been administered to a rabbit for 3 consecutive days without any undesirable results whatever.

The value of Chinosol in catarrhal troubles is said to be very pronounced.

The psychological depressions and neuralgias so common in the period following a debauch, are lessened or disappear altogether by the use of Celerina.

Resolutions adopted by the Executive Committee of the American National Red Cross, October 18, 1907:

Whereas, By international agreement in the Treaty of Geneva, 1864, and the revised Treaty of Geneva, 1906, "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross" were adopted to designate the personnel protected by this Convention; and

Whereas, The Treaty further provides (Article 23) that "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross can only be used whether in time of peace or war, to protect or designate sanitary formations and establishments, the personnel and material protected by this Convention;" and

Whereas, The American National Red Cross comes under the regulations of this Treaty according to Article 10, "volunteer aid societies, duly recognized and authorized by their respective Governments," such recognition and authority having been conferred upon the American National Red Cross in the charter granted by Congress, January 5, 1905, section 2, "The corporation hereby created is designated as the organization which is authorized to act in matters of relief under said Treaty," and, furthermore,

Whereas, in the Revised Treaty of Geneva, 1906, in Article 27, it is provided that the "signatory powers whose legislation should not now be adequate, engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons or by societies other than those upon which this Convention confers the right thereto of the emblem or name of the Red Cross or Geneva Cross,"

Be it Resolved, That the Executive Committee of the American National Red Cross requests that all hospitals, health departments and like institutions kindly desist from the use of the Red Cross created for the special purpose mentioned above, and suggests that for it should be substituted some other insignia, such as a green St. Andrew's Cross on a white ground, to be named the "Hospital Cross," and used to designate all hospitals (save such as are under the Medical Departments of the Army and Navy and the authorized volunteer aid society of the Government), all health departments and like institutions; and, further,

Be it Resolved, That the Executive Committee of the American National Red Cross likewise requests that all individuals or business firms and corporations who employ the Geneva Red Cross for business purposes, kindly desist from such use, gradually withdrawing its employment and substituting some other distinguishing mark.

Diets for the Sick.—The importance of having the patient know exactly what diet he should take, oftentimes enhances the value of the medical treatment. New clinical observations along the line of diet are often noted in medical journals and in the edition of Diet Leaflets prepared by Reed & Carnrick, these points have been added, thus bringing this little book up to date.

They will be pleased to furnish to physicians a copy of this book, in celluloid covers, of a size convenient for the vest pocket, upon request.

Simply write to Reed & Carnrick, Jersey City, N. J., asking for their "Diet Leaflets."

Dr. Victor C. Pedersen, of this city, has devised an inhaler for the ordinary sequences and mixtures of anesthetics, on the principle of unobstructed respiration, which has been found easy to operate, certain in results, safe and gentle in administration, and surgical in its separability of parts for boiling. It may be had of George Tiemann & Co.



A. & O. DOUCHE FOR THE APPLICATION OF
GLYCO-THYMOLINE TO THE NASAL CAVITIES

GLYCO= THYMOLINE

FOR

CATARRHAL CONDITIONS

Nasal, Throat
Intestinal
Stomach, Rectal
and Utero-Vaginal

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There are Two Kinds of Babies

The good-natured, laughing, cooing, playful infant, and the unhappy, ill-tempered, crying, restless child. But both require correct feeding. So many various phases complicate the question of the proper food for the baby when artificial feeding becomes imperative that the physician is often disheartened in his effort to find the appropriate substitute.

For years

LACTATED INFANT FOOD

has given universally good results in the hands of thousands of physicians in all parts of the world. It can be prescribed, with the highest degree of confidence, in any combination suited to the existing conditions. Its scientific approximation to mother's milk makes it the most appropriate substitute food for infants ever offered to the medical profession. It is susceptible to unlimited variations, in combination with milk, to suit every condition.

The extensive experience of countless physicians is its strongest testimonial.

Physicians who wish to give Lactated Infant Food a careful trial may have samples sent direct to patients by forwarding to us names and addresses.

WELLS & RICHARDSON CO.
BURLINGTON, VT.

Valentine's Meat-Juice

For its **Ease of Assimilation, Power to Sustain and Nourish,** and its **Acceptability to the Stomach,** when other foods are rejected, the **Concentrated, Rapid Blood-Making Nutrient,** Valentine's Meat-Juice, is extensively employed in the treatment of

Influenza and Pneumonia.

J. E. Buchanan, M. D., *Professor Gynecology, Homœopathic Medical College Missouri, St. Louis:* "I have been using Valentine's Meat-Juice successfully for a long time in my practice, and am using it now as the best available food in the treatment of Influenza."

John L. Daniels, M. D., *Visiting Physician Metropolitan Hospital, New York:* "We have given Valentine's Meat-Juice quite an extensive trial. It is agreeable to the taste, and in cases of debility has proved a valuable adjunct to our therapeutic agencies. I have found Valentine's Meat-Juice very useful in the treatment of Pneumonia with irritable stomach."

Physicians are invited to send for brochures containing clinical reports.

For sale by American and European Chemists and Druggists.

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GRANULATED DRY BEEF

Free from Preservatives.

Does Not Deteriorate with Age.

Analyses made by leading Chemists and Bacteriologists show that Meatox is the most concentrated nitrogenous food that has ever been produced. It contains from

73 to 75 per cent. of Assimilable Proteid.

It digests more easily than the white of a soft boiled egg.

A sample with literature containing Analytical and Physiological Reports by leading Scientists will be mailed free to Doctors on request.

PREPARED ONLY BY

Charles Marchand

*Chemist and Graduate of the Ecole
Centrale des Arts et Manufactures
de Paris (France).*

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SOLD BY LEADING DRUGGISTS.—Please mention this Journal.

The Coward Shoe

The Rational Remedy for "Flat-Foot"

FALLEN ARCH or "flat-foot" is caused, in many cases, by ill-fitting shoes, which provide no support



about the waist of the foot, and allow the arch to drop down when subjected to this continual strain.

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Grant's Last Days.—Dr. George F. Shrady, one of General Grant's physicians in his last illness, and in frequent attendance upon him, has written for early publication in The Century of "General Grant's Last Days," putting on record interesting details relating to Grant's last months, of which no adequate account has previously been written.

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Treatment of Uterovaginal Catarrh.—Fifteen months ago, reports Dr. C. E. Brandenburg, Mrs. X. came to me for treatment, giving the following history: Six years previous she had a miscarriage since which she had been troubled with a profuse leucorrhea of a very foul odor. At her menstrual period she suffered greatly and flowed excessively. On examination the cervix was found to be nearly four times its normal size and so badly eroded as to have every appearance of a cancer and had been mistaken for such by one physician. The uterus was soft and boggy and very much enlarged. She had been to the hospital on two occasions and each time had been curetted, but this seemed only to aggravate the general condition. For over a year I treated her with every means at hand, but to no purpose. I was making preparations for an operation, which would have meant the removal of the uterus, when my attention was drawn to Glyco-Thymoline and I determined to give it a thorough trial before operative measures were to be further introduced. An intrauterine douche of Glyco-Thymoline in 25 per cent. hot solution was administered and lamb's wool tampons saturated with Glyco-Thymoline pure was used. She began to improve from the first application. The leucorrhea became less and the odor disappeared entirely. The cervix took on a healthy look. The uterus decreased in size and became firm; in fact, she is now nearly well after nine weeks' treatment with Glyco-Thymoline.

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SELECTIONS

Typhoid Fever and Modern Treatment.—Good elimination should be maintained from every gland and emunctory, writes W. T. Marrs, of Peoria Heights, Ill. Every secretion should be aroused and made to do its best. Calomel in small doses is one of our best remedies. Salines are nearly always indicated. Abbott's saline laxative is pleasanter and better than crude salts. He has observed that if the bowels act not less than twice daily, the course and severity of the disease is modified. The old idea that in typhoid the bowels should be kept confined for a few days at a time, is now looked upon as having been an untenable theory. The more debris and toxins are eliminated, the less will the disease be compelled to oxidize by the process of fever. The more water the patient drinks, the more are poisons eliminated or diluted, thus lessening their absorption. In case of hyperpyrexia, give a colonic flushing and the high temperature usually comes down a degree or two. The sulphocarbolates (W-A Intestinal Antiseptics) should be given to neutralize remaining foci of infection. Patients treated along this line seldom require the cold bath. Tepid spongings at frequent intervals usually serve a better purpose than the bath of low temperature.—Merck's Archives.

Treatment of Morphine Habit with Dionin.—For the cure of the morphine habit, James P. Haines, of Beloit, N. Y., uses dionin, as follows: If the patient uses 3 grn. of morphine per day, substitute for it 1 1-2 grn. morphine with 1 1-2 grn. of dionin, gradually reducing the morphine daily by 1-6 grn., for ten days, and correspondingly increasing the dionin, so that at the end of the period dionin only is being given, 3 grn. continued for three days. The dionin is then reduced 1-6 grn. less per day, until nothing but water is being given. The writer thinks it just as well to continue treatment for about three months, giving as a tonic 1 grn. of quinine per day, and either veronal or somnos for insomnia. In using dionin and morphine together, the writer states, the effect of the dionin is observed much sooner, but it never increases the effect of the morphine. Another point he makes in favor of dionin is that it does not make the mouth sore, as he has observed codeine and atropine to do.—Correspondence.

Various forms of Uterine Hemorrhage Treated with Stypticin.—M. Nigoul finds in stypticin an agent as valuable in controlling hemorrhage from the uterus and adnexa as are ergot or hydrastis—if not more valuable. By reason of its chemical constancy, moreover, the action of stypticin is uniform and it has a mild analgesic action. The author has made a series of observations on its use in the treatment of various groups of gynecological affections. In the first group he classes the menorrhagias and metrorrhagias of young menstruating girls, as well as the dysmenorrhoeas. In these cases 5 to 6 tablets of 3-4 grn. each are given daily until the pain and bleeding have markedly diminished. From 3 to 4 tablets a day have proven serviceable in preventing attacks. Stypticin is particularly indicated in the bleeding at the climacteric period. Nigoul administered 3 to 5 tablets a day for ten days, and repeated the treatment after a week's pause, with the result of greatly lessening the flow and the pain, and bringing about a more rapid completion of the period of the menopause.

In a second group of metritis and displacements, stypticin proved very effective. In metritis fungosa it has a marked hemostatic action, especially following curettage.

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Syphilitic interstitial orchitis resembles closely in appearance new growth of the testicle. Unless the diagnosis of neoplasm is beyond all doubt, an active course of specific treatment should be tried before removing the organ.—Amer. Jour. of Sur.

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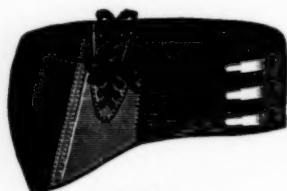
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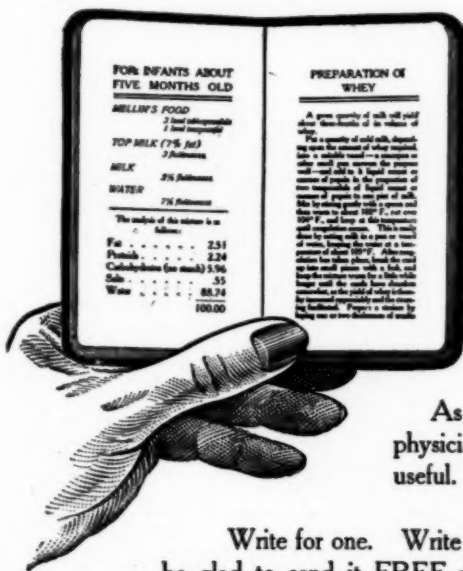
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SELECTIONS

Unclean kitchens in hotels, restaurants, lunch-rooms and private houses are to become the objects of an active crusade by the State Health Department of New York. The following paragraph from the latest issue of the Monthly Bulletin of the State Department of Health gives an idea of the campaign which is to be inaugurated in New York State against the evils of unsanitary conditions in the places where food is prepared.

"Health Commissioner Wade, of Buffalo, has been making an inspection of restaurants in the city, and found in a number of cases unclean kitchens and refrigerators and tainted meat. A similar crusade would be in order in a great many cities. Not only the kitchens, but the restaurants themselves, in many instances, show room for improvement. The number of lunch rooms is constantly growing, and in nearly every one, access of flies to sundry articles of food displayed on the counter is in no way prevented. And where did the fly come from?"

The subject of sanitation in kitchens is one which should interest every resident of a large city for the simple reason that the infectious or contagious diseases which have their origin in some small unclean lunch room or hotel, may bring misfortune to a family no member of which has ever even seen the place. It is a knowledge of this condition of affairs which has induced the municipal authorities in every large city to extend the police powers granted to the health authorities to inspect the sanitary arrangements of the smallest private kitchen in the city. Many conscientious housekeepers, whose kitchens are models of neatness and apparent cleanliness, are much surprised when the visiting health officer informs them that some condition in the kitchen must be attended to immediately, as it is a positive danger to the health of the community. These health officers are looking for scientific cleanliness and the carefully scrubbed floor and polished pots and pans do not prevent them from making a rigid inspection of the plumbing arrangements and other sanitary conditions of the kitchen.

The two conditions absolutely necessary for a sanitary kitchen are, first, careful scientific plumbing by which all refuse matter is carried off immediately and which prevents the return through the pipes of injurious gases of any kind; and second, the non-absorbent floors and walls. These lat-

ter are perhaps the most important because they are the most frequently neglected. In all cooking operations much grease and other animal and vegetable matter is spattered upon the floors and walls. If the kitchen is to be sanitary, this organic matter should be positively and absolutely removed at the end of each day, before it has had time to decompose and give life to insects or micro-organisms which naturally thrive in the warm atmosphere of the kitchen. If the kitchen floor and wainscoting is of wood, much of the dirt which falls upon it is absorbed by the boards or passes into the cracks between them. Here it is out of reach of the scrubbing brush, and no amount of laborious floor scrubbing will remove the organic matter. In fact, the very water which is used in attempting to clean the kitchen supplies the wooden floor and wainscoting with the moisture which is necessary to the propagation of the insects and bacteria that are bred within the boards or in every crack and recess that is left filled with organic matter. To be really sanitary, the kitchen floor and walls should be water-proof, germ-proof and insect-proof. Consequently it should be covered with some non-absorbent and inorganic material. Covering the floor with oilcloth, linoleum, rubber tile or other semi-water-proof material, lessens the work of the domestic servant by enabling her to wash the floor easily, but in many respects it adds to the unsanitary condition of the kitchen because it merely hides and covers much of the dirt and dampness which inevitably finds its way under this superficial floor covering and there remains until the covering is replaced because it is worn out.

The truly sanitary and scientific covering for the floors and walls of the kitchen is the baked clay tile. It is thoroughly non-absorbent and all dirt which falls upon it can be removed as easily as from an ordinary dinner plate. It is germ-proof, fire-proof and vermin-proof. Rats, mice, flies and other insects which are a pest in so many kitchens cannot exist in one which is completely tiled. A tiled kitchen can be quite safely flushed out with a hose. In hotels, restaurants and lunch-rooms, this is a very important consideration because the kitchen force is usually so rushed in preparing dishes for the table that there is little time to clean the room in which they work. About the only floor and walls which can be thoroughly cleaned by a superficial washing are the ones covered with clay tile. For this reason the tiling of the kitchen is really of more importance from a sanitary standpoint than the tiling of the bath-room.

The tiled kitchen in this country is of relatively recent origin. It is a result of that popular demand for scientific cleanliness which forced upon the National Congress at Washington the passage of the Pure Food Laws and which is now compelling the State and Municipal health departments all over the country to subject to rigid inspection the sanitary arrangements of the kitchen. Numerous medical and health journals throughout the country ably seconded by the daily press, are endeavoring to make the public realize the importance of sanitary kitchens, especially in our large and crowded cities. According to modern notions of domestic science the sanitary arrangements of the kitchen should rival those of the operating room of a Twentieth Century Hospital.—Charles J. Fox, Ph.D.

The Red City, a new historical novel of Philadelphia in the time of President Washington, by Dr. S. Weir Mitchell, author of "Hugh Wynne." This new novel by Dr. Mitchell, which will appear in the Century magazine, is a mate to his famous novel of "Hugh Wynne." While the former story was of the time of Washington the General, the new one is of the time of Washington the President. It is the romance of a Huguenot emigre whose father has been wantonly killed at Avignon by the Revolutionists, and who comes with his widowed mother to Philadelphia. There he falls in love with a young Quakeress, goes into the employ of Hugh Wynne, comes in contact with Jefferson, Hamilton and other public men; also with a mysterious German and with Aunt Gaynor, who figured so largely in the "Hugh Wynne" novel. In it there is a remarkable account of the great plague in Philadelphia and the hero becomes mixed up in cabinet intrigues at a time when the warring English and French factions were embarrassing the President. The story is a true and valuable picture of the time of Washington's Presidency, and has to do with him personally. It is strikingly illustrated by Keller.

The Physicians' Visiting List for 1908 has been issued by P. Blakiston's Son & Co. for the fifty-seventh year of its publication. The dose-table has been revised in accordance with the new U. S. Pharmacopoeia. The contents, as usual, contains practical matter, such as a table for calculating the period of utero-gestation, table of signs, treatment of poisoning and other matter necessary to have always at hand. This little book is well known and popular with the profession. The price is only \$1.00.

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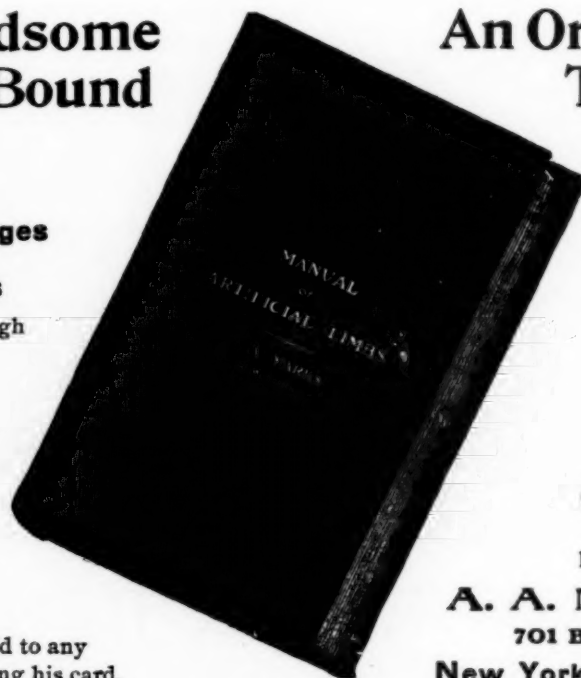
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